

CHAPTER 81

VIRGINIA SOLID WASTE MANAGEMENT REGULATIONS

Part I Definitions	3
9VAC20-81-10. Definitions.	3
Part II General Information	18
9VAC20-81-20. Policy	18
9VAC20-81-25. Purpose of chapter.	18
9VAC20-81-30. Administration of chapter.	18
9VAC20-81-35. Applicability of chapter.	18
9VAC20-81-40. Prohibitions.	24
9VAC20-81-45. Open dumps.....	25
9VAC20-81-50. Enforcement and appeal	27
9VAC20-81-60. Ten-year permit review.	27
9VAC20-81-70. Public participation and information.	28
9VAC20-81-80. Solid waste information and assessment program.....	28
9VAC20-81-90. Relationship with other regulations promulgated by the Virginia Waste Management Board.....	29
9VAC20-81-95. Identification of solid waste.....	30
9VAC20-81-97. Beneficial use demonstrations.....	36
Part III Solid Waste Disposal Facility Standards for Sanitary Landfills, Construction/Demolition/Debris (CDD) Landfills, and Industrial Waste Landfills	39
9VAC20-81-100. General.	39
9VAC20-81-110. Applicability.	40
9VAC20-81-120. Siting requirements.....	41
9VAC20-81-130. Design and construction requirements.....	44
9VAC20-81-140. Operation requirements.....	51
9VAC20-81-160. Closure requirements.	56
9VAC20-81-170. Postclosure care requirements.....	60
9VAC20-81-200. Control of decomposition gases.....	62
9VAC20-81-210. Leachate control.	65
9VAC20-81-250. Groundwater monitoring program.	66
9VAC20-81-260. Corrective action program.	92
Part IV Other Solid Waste Management Facility Standards: Compost Facilities; Solid Waste Transfer Stations; Centralized Waste Treatment Facilities; Materials Recovery Facilities; Waste to Energy; Incineration Facilities; Surface Impoundments and Lagoons; Waste Piles; Remediation Waste Management Units; Landfill Mining; Miscellaneous Units; and Exempt Management Facilities	102
9VAC20-81-300. General.	102
9VAC20-81-310. Applicability.	103
9VAC20-81-320. Siting requirements.....	106
9VAC20-81-330. Design and construction requirements.....	106
9VAC20-81-340. Operation requirements.....	114

9VAC20-81-350. Recordkeeping requirements.	122
9VAC20-81-360. Closure requirements.	123
9VAC20-81-370. Closure requirements for surface impoundments and lagoons.	124
9VAC20-81-380. Remediation waste management units.	125
9VAC20-81-385. Landfill mining.	127
9VAC20-81-395. Miscellaneous facilities.	128
9VAC20-81-397. Exempt yard waste composting facilities.	129
Part V Permitting of Solid Waste Management Facilities	134
9VAC20-81-400. Applicability.	134
9VAC20-81-410. Permits-by-rule and other special permits.....	134
9VAC20-81-430. Permit conditions.	139
9VAC20-81-450. Permit application procedures.	139
9VAC20-81-460. Part A permit application.	145
9VAC20-81-470. Part B permit application for solid waste disposal facilities.....	150
9VAC20-81-480. Part B permit application requirements for other solid waste management facilities.	153
9VAC20-81-485. Operations manual requirements for solid waste management facilities.....	155
9VAC20-81-490. Effect of the permit.	159
9VAC20-81-530. Recording and reporting required of a permittee.	161
9VAC20-81-550. Permit denial.	162
9VAC20-81-560. Appeal of a permit denial.	162
9VAC20-81-570. Revocation or suspension of permits.	163
9VAC20-81-580. Appeal of revocation of a permit.	164
9VAC20-81-600. Modification of permits.....	164
Part VI Special Wastes	174
9VAC20-81-610. General.	174
9VAC20-81-620. Asbestos-containing waste materials.....	174
9VAC20-81-630. Wastes containing polychlorinated biphenyls (PCBs).	175
9VAC20-81-640. Waste tires.	176
9VAC20-81-650. White goods.	177
9VAC20-81-660. Soil contaminated with petroleum products.	177
Part VII Variance Application Procedures	180
9VAC20-81-700. General.	180
9VAC20-81-710. Solid waste classification exemption procedure.	180
9VAC20-81-720. Variances to permitting requirements.....	182
9VAC20-81-740. Variance to location of the groundwater monitoring system.....	183
9VAC20-81-760. Administrative procedures.....	184

Part I
Definitions

9VAC20-81-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Active life" means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities required by this chapter.

"Active portion" means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with this chapter.

"Agricultural waste" means all solid waste produced from farming operations.

"Airport" means, for the purpose of this chapter, a military airfield or a public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

"Aquifer" means a geologic formation, group of formations, or a portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

"Ash" means the fly ash or bottom ash residual waste material produced from incineration or burning of solid waste or from any fuel combustion.

"Base flood" see "Hundred-year flood."

"Bedrock" means the rock that underlies soil or other unconsolidated, superficial material at a site.

"Benchmark" means a permanent monument constructed of concrete and set in the ground surface below the frostline with identifying information clearly affixed to it. Identifying information will include the designation of the benchmark as well as the elevation and coordinates on the local or Virginia state grid system.

"Beneficial use" means a use that is of benefit as a substitute for natural or commercial products and does not contribute to adverse effects on health or environment.

"Bioremediation" means remediation of contaminated media by the manipulation of biological organisms to enhance the degradation of contaminants.

"Bird hazard" means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

"Board" means the Virginia Waste Management Board.

"Bottom ash" means ash or slag that has been discharged from the bottom of the combustion unit after combustion.

"Capacity" means the maximum permitted volume of solid waste, inclusive of daily and intermediate cover, that can be disposed in a landfill. This volume is measured in cubic yards.

"Captive industrial landfill" means an industrial landfill that is located on property owned or controlled by the generator of the waste disposed of in that landfill.

"Clean wood" means solid waste consisting of untreated wood pieces and particles that do not contain paint, laminate, bonding agents, chemical preservatives or are otherwise unadulterated.

"Closed facility" means a solid waste management facility that has been properly secured in accordance with the requirements of this chapter.

"Closure" means that point in time when a permitted landfill has been, capped, certified as properly closed by a professional engineer, inspected by the department,

and closure notification is performed by the department in accordance with 9VAC20-81-160 D.

"Coal combustion byproducts" or "CCB" means residuals, including fly ash, bottom ash, boiler slag, and flue gas emission control waste produced by burning coal.

"Combustion unit" means an incinerator, waste heat recovery unit, or boiler.

"Commercial waste" means all solid waste generated by establishments engaged in business operations other than manufacturing or construction. This category includes, but is not limited to, solid waste resulting from the operation of stores, markets, office buildings, restaurants, and shopping centers.

"Compliance schedule" means a time schedule for measures to be employed on a solid waste management facility that will ultimately upgrade it to conform to this chapter.

"Compost" means a stabilized organic product produced by a controlled aerobic decomposition process in such a manner that the product can be handled, stored, and/or applied to the land without adversely affecting public health or the environment.

"Composting" means the manipulation of the natural process of decomposition of organic materials to increase the rate of decomposition.

"Conditionally exempt small quantity generator" means a generator of hazardous waste who has been so defined in 40 CFR 261.5, as amended. That section applies to the persons who generate in that calendar month no more than 100 kilograms of hazardous waste or one kilogram of acutely hazardous waste.

"Construction" means the initiation of permanent physical change at a property with the intent of establishing a solid waste management unit. This does not include land-clearing activities, excavation for borrow purposes, activities intended for infrastructure purposes, or activities necessary to obtain Part A siting approval (i.e., advancing of exploratory borings, digging of test pits, groundwater monitoring well installation, etc.).

"Construction/demolition/debris landfill" or "CDD landfill" means a land burial facility engineered, constructed and operated to contain and isolate construction waste, demolition waste, debris waste, split tires, and white goods, or combinations of the above solid wastes.

"Construction waste" means solid waste that is produced or generated during construction, remodeling, or repair of pavements, houses, commercial buildings, and other structures. Construction wastes include, but are not limited to lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metal and plastics if the metal or plastics are a part of the materials of construction or empty containers for such materials. Paints, coatings, solvents, asbestos, any liquid, compressed gases or semi-liquids and garbage are not construction wastes.

"Contaminated soil" means, for the purposes of this chapter, a soil that, as a result of a release or human usage, has absorbed or adsorbed physical, chemical, or radiological substances at concentrations above those consistent with nearby undisturbed soil or natural earth materials.

"Container" means any portable device in which a material is stored, transported, treated, or otherwise handled and includes transport vehicles that are containers themselves (e.g., tank trucks) and containers placed on or in a transport vehicle.

"Containment structure" means a closed vessel such as a tank or cylinder.

"Convenience center" means a collection point for the temporary storage of solid waste provided for individual solid waste generators who choose to transport solid waste generated on their own premises to an established centralized point, rather than directly

to a disposal facility. To be classified as a convenience center, the collection point may not receive waste from collection vehicles that have collected waste from more than one real property owner. A convenience center shall be on a system of regularly scheduled collections.

"Cover material" means compactable soil or other approved material that is used to blanket solid waste in a landfill.

"Daily disposal limit" means the amount of solid waste that is permitted to be disposed at the facility and shall be computed on the amount of waste disposed during any operating day.

"Debris waste" means wastes resulting from land-clearing operations. Debris wastes include, but are not limited to stumps, wood, brush, leaves, soil, and road spoils.

"Decomposed vegetative waste" means a stabilized organic product produced from vegetative waste by a controlled natural decay process in such a manner that the product can be handled, stored, or applied to the land without adversely affecting public health or the environment.

"Demolition waste" means that solid waste that is produced by the destruction of structures and their foundations and includes the same materials as construction wastes.

"Department" means the Virginia Department of Environmental Quality.

"Director" means the Director of the Department of Environmental Quality. For purposes of submissions to the director as specified in the Waste Management Act, submissions may be made to the department.

"Discard" means to abandon, dispose of, burn, incinerate, accumulate, store, or treat before or instead of being abandoned, disposed of, burned, or incinerated.

"Discarded material" means a material that is:

1. Abandoned by being:
 - a. Disposed of;
 - b. Burned or incinerated; or
 - c. Accumulated, stored, or treated (but not used, reused, or reclaimed) before or in lieu of being abandoned by being disposed of, burned, or incinerated; or
2. Recycled used, reused, or reclaimed material as defined in this part.

"Disclosure statement" means a sworn statement or affirmation as required by § 10.1-1400 of the Code of Virginia. (see DEQ Form DISC-01 and 02 (Disclosure Statement)).

"Displacement" means the relative movement of any two sides of a fault measured in any direction.

"Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that such solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters.

"Disposal unit boundary" or "DUB" means the vertical plane located at the edge of the waste disposal unit. This vertical plane extends down into the uppermost aquifer. The DUB must be positioned within or coincident to the waste management boundary.

"EPA" means the United States Environmental Protection Agency.

"Exempt management facility" means a site used for activities that are conditionally exempt from management as a solid waste under this chapter. The facility remains

exempt from solid waste management requirements provided it complies with the applicable conditions set forth in Parts II (9VAC20-81-20 et seq.) and IV (9VAC20-81-300 et seq.) of this chapter.

"Expansion" means a horizontal expansion of the waste management boundary as identified in the Part A application. If a facility's permit was issued prior to the establishment of the Part A process, an expansion is a horizontal expansion of the disposal unit boundary.

"Facility" means solid waste management facility unless the context clearly indicates otherwise.

"Facility boundary" means the boundary of the solid waste management facility. For landfills, this boundary encompasses the waste management boundary and all ancillary activities including, but not limited to scales, groundwater monitoring wells, gas monitoring probes, and maintenance facilities as identified in the facility's permit application. For facilities with a permit-by-rule (PBR) the facility boundary is the boundary of the property where the permit-by-rule activity occurs. For unpermitted solid waste management facilities, the facility boundary is the boundary of the property line where the solid waste is located.

"Facility structure" means any building, shed, or utility or drainage line on the facility.

"Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

"Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters, including low-lying areas of offshore islands where flooding occurs.

"Fly ash" means ash particulate collected from air pollution attenuation devices on combustion units.

"Food-chain crops" means crops grown for human consumption, tobacco, and crops grown for pasture and forage or feed for animals whose products are consumed by humans.

"Fossil fuel combustion products" means coal combustion byproducts as defined in this regulation, coal combustion byproducts generated at facilities with fluidized bed combustion technology, petroleum coke combustion byproducts, byproducts from the combustion of oil, byproducts from the combustion of natural gas, and byproducts from the combustion of mixtures of coal and "other fuels" (i.e., co-burning of coal with "other fuels" where coal is at least 50% of the total fuel). For purposes of this definition, "other fuels" means waste-derived fuel product, auto shredder fluff, wood wastes, coal mill rejects, peat, tall oil, tire-derived fuel, deionizer resins, and used oil.

"Free liquids" means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure as determined by the Paint Filter Liquids Test, Method 9095, U.S. Environmental Protection Agency, Publication SW-846.

"Garbage" means readily putrescible discarded materials composed of animal, vegetable or other organic matter.

"Gas condensate" means the liquid generated as a result of gas control or recovery processes at the solid waste management facility.

"Governmental unit" means any department, institution, or commission of the Commonwealth and any public corporate instrumentality thereof, and any district, and shall include local governments.

"Ground rubber" means material processed from waste tires that is no larger than 1/4 inch in any dimension. This includes crumb rubber that is measured in mesh sizes.

"Groundwater" means water below the land surface in a zone of saturation.

"Hazardous constituent" means a constituent of solid waste found listed in Appendix VIII of 9VAC20-60-261.

"Hazardous waste" means a "hazardous waste" as described by the Virginia Hazardous Waste Management Regulations (9VAC20-60).

"Holocene" means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

"Home use" means the use of compost for growing plants that is produced and used on a privately owned residential site.

"Host agreement" means any lease, contract, agreement, or land use permit entered into or issued by the locality in which the landfill is situated that includes terms or conditions governing the operation of the landfill.

"Household hazardous waste" means any waste material derived from households (including single and multiple residences, hotels, motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas) which, except for the fact that it is derived from a household, would otherwise be classified as a hazardous waste in accordance with 9VAC20-60.

"Household waste" means any waste material, including garbage, trash, and refuse, derived from households. Households include single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas. Household wastes do not include sanitary waste in septic tanks (septage) that is regulated by other state agencies.

"Hundred-year flood" means a flood that has a 1.0% or greater chance of recurring in any given year or a flood of magnitude equaled or exceeded on the average only once in a hundred years on the average over a significantly long period.

"Incineration" means the controlled combustion of solid waste for disposal.

"Incinerator" means a facility or device designed for the treatment of solid waste by combustion.

"Industrial waste" means any solid waste generated by manufacturing or industrial process that is not a regulated hazardous waste. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

"Industrial waste landfill" means a solid waste landfill used primarily for the disposal of a specific industrial waste or a waste that is a byproduct of a production process.

"Injection well" means, for the purposes of this chapter, a well or bore hole into which fluids are injected into selected geological horizons.

"Institutional waste" means all solid waste emanating from institutions such as, but not limited to, hospitals, nursing homes, orphanages, and public or private schools. It can include regulated medical waste from health care facilities and research facilities that must be managed as a regulated medical waste.

"Interim cover systems" are temporary cover systems applied to a landfill area when landfilling operations will be temporarily suspended for an extended period (typically, longer than one year). At the conclusion of the interim period, the interim cover system may be removed and landfilling operations resume or final cover is installed.

"Karst topography" means areas where karst terrane, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

"Key personnel" means the applicant itself and any person employed by the applicant in a managerial capacity, or empowered to make discretionary decisions, with respect to the solid waste or hazardous waste operations of the applicant in Virginia, but shall not include employees exclusively engaged in the physical or mechanical collection, transportation, treatment, storage, or disposal of solid or hazardous waste and such other employees as the director may designate by regulation. If the applicant has not previously conducted solid waste or hazardous waste operations in Virginia, the term also includes any officer, director, partner of the applicant, or any holder of 5.0% or more of the equity or debt of the applicant. If any holder of 5.0% or more of the equity or debt of the applicant or of any key personnel is not a natural person, the term includes all key personnel of that entity, provided that where such entity is a chartered lending institution or a reporting company under the Federal Security and Exchange Act of 1934, the term does not include key personnel of such entity. Provided further that the term means the chief executive officer of any agency of the United States or of any agency or political subdivision of the Commonwealth, and all key personnel of any person, other than a natural person, that operates a landfill or other facility for the disposal, treatment, or storage of nonhazardous solid waste under contract with or for one of those governmental entities.

"Lagoon" means a body of water or surface impoundment designed to manage or treat waste water.

"Land clearing activities" means the removal of flora from a parcel of land.

"Land clearing debris" means vegetative waste resulting from land clearing activities.

"Landfill" means a sanitary landfill, an industrial waste landfill, or a construction/demolition/debris landfill.

"Landfill gas" means gas generated as a byproduct of the decomposition of organic materials in a landfill. Landfill gas consists primarily of methane and carbon dioxide.

"Landfill mining" means the process of excavating solid waste from an existing landfill.

"Leachate" means a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials from such waste. Leachate and any material with which it is mixed is solid waste; except that leachate that is pumped from a collection tank for transportation to disposal in an off-site facility is regulated as septage, leachate discharged into a waste water collection system is regulated as industrial waste water and leachate that has contaminated groundwater is regulated as contaminated groundwater.

"Lead acid battery" means, for the purposes of this chapter, any wet cell battery.

"Lift" means the daily landfill layer of compacted solid waste plus the cover material.

"Liquid waste" means any waste material that is determined to contain "free liquids" as defined by this chapter.

"Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock, that formed by crystallization of magma or by induration of loose sediments. This term does not include manmade materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth's surface.

"Litter" means, for purposes of this chapter, any solid waste that is discarded or scattered about a solid waste management facility outside the immediate working area.

"Lower explosive limit" means the lowest concentration by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and at atmospheric pressure.

"Materials recovery facility" means a solid waste management facility for the collection, processing, and recovery of material such as metals from solid waste or for the production of a fuel from solid waste. This does not include the production of a waste-derived fuel product.

"Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

"Monitoring" means all methods, procedures, and techniques used to systematically analyze, inspect, and collect data on operational parameters of the facility or on the quality of air, groundwater, surface water, and soils.

"Monitoring well" means a well point below the ground surface for the purpose of obtaining periodic water samples from groundwater for quantitative and qualitative analysis.

"Mulch" means woody waste consisting of stumps, trees, limbs, branches, bark, leaves and other clean wood waste that has undergone size reduction by grinding, shredding, or chipping, and is distributed to the general public for landscaping purposes or other horticultural uses except composting as defined and regulated under this chapter.

"Municipal solid waste" means that waste that is normally composed of residential, commercial, and institutional solid waste and residues derived from combustion of these wastes.

"New solid waste management facility" means a facility or a portion of a facility that was not included in a previous determination of site suitability (Part A approval).

"Nuisance" means an activity that unreasonably interferes with an individual's or the public's comfort, convenience or enjoyment such that it interferes with the rights of others by causing damage, annoyance, or inconvenience.

"Offsite" means any site that does not meet the definition of onsite as defined in this part.

"Onsite" means the same or geographically contiguous property, which may be divided by public or private right-of-way, provided the entrance and exit to the facility are controlled by the owner or the operator of the facility. Noncontiguous properties owned by the same person, but connected by a right-of-way that he controls and to which the public does not have access, are also considered onsite property.

"Open burning" means the combustion of solid waste without:

1. Control of combustion air to maintain adequate temperature for efficient combustion;

2. Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and
3. Control of the combustion products' emission.

"Open dump" means a site on which any solid waste is placed, discharged, deposited, injected, dumped, or spilled so as to present a threat of a release of harmful substances into the environment or present a hazard to human health. Such a site is subject to the Open Dump Criteria in 9VAC20-81-45.

"Operating record" means records required to be maintained in accordance with the facility permit or this part (see 9VAC20-81-530).

"Operation" means all waste management activities at a solid waste management facility beginning with the initial receipt of solid waste for treatment, storage, disposal, or transfer and ceasing with the initiation of final closure activities at the solid waste management facility subsequent to the final receipt of waste.

"Operator" means the person responsible for the overall operation and site management of a solid waste management facility.

"Owner" means the person who owns a solid waste management facility or part of a solid waste management facility.

"PCB" means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances that contain such substance (see 40 CFR 761.3, as amended).

"Perennial stream" means a well-defined channel that contains water year round during a year of normal rainfall. Generally, the water table is located above the streambed for most of the year and groundwater is the primary source for stream flow. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water.

"Permit" means the written permission of the director to own, operate, or construct a solid waste management facility.

"Person" means an individual, corporation, partnership, association, a governmental body, a municipal corporation, or any other legal entity.

"Point source" means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, vessel, or other floating craft, from which pollutants are or may be discharged. Return flows from irrigated agriculture are not included.

"Pollutant" means any substance that causes or contributes to, or may cause or contribute to, environmental degradation when discharged into the environment.

"Poor foundation conditions" means those areas where features exist that indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a solid waste management facility.

"Postclosure" means the requirements placed upon solid waste disposal facilities after closure to ensure environmental and public health safety for a specified number of years after closure.

"Process rate" means the maximum rate of waste acceptance that a solid waste management facility can process for a treatment and/or storage. This rate is limited by the capabilities of equipment, personnel, and infrastructure.

"Processing" means preparation, treatment, or conversion of waste by a series of actions, changes, or functions that bring about a desired end result.

"Professional engineer" means an engineer licensed to practice engineering in the Commonwealth as defined by the rules and regulations set forth by the Board of Architects, Professional Engineers, Land Surveyors, and Landscape Architects (18VAC10-20).

"Professional geologist" means a geologist licensed to practice geology in the Commonwealth as defined by the rules and regulations set forth by the Board for Geology (18VAC70-20).

"Progressive cover" means cover material placed over the working face of a solid waste disposal facility advancing over the deposited waste as new wastes are added keeping the exposed area to a minimum.

"Putrescible waste" means solid waste that contains organic material capable of being decomposed by micro-organisms and cause odors.

"Qualified groundwater scientist" means a scientist or engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

"RCRA" means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (42 USC §6901 et seq.), the Hazardous and Solid Waste Amendments of 1984, and any other applicable amendments to these laws.

"Reclaimed material" means a material that is processed or reprocessed to recover a usable product or is regenerated to a usable form.

"Refuse" means all solid waste products having the character of solids rather than liquids and that are composed wholly or partially of materials such as garbage, trash, rubbish, litter, residues from clean up of spills or contamination, or other discarded materials.

"Refuse-derived fuel (RDF)" means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including low-density fluff refuse-derived fuel through densified refuse-derived fuel and pelletized refuse-derived fuel.

"Regulated hazardous waste" means a solid waste that is a hazardous waste, as defined in the Virginia Hazardous Waste Management Regulations (9VAC20-60), that is not excluded from those regulations as a hazardous waste.

"Regulated medical waste" means solid wastes so defined by the Regulated Medical Waste Management Regulations (9VAC20-120) as promulgated by the Virginia Waste Management Board.

"Release" means, for the purpose of this chapter, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injection, escaping, leaching, dumping, or disposing into the environment solid wastes or hazardous constituents of solid wastes (including the abandonment or discarding of barrels, containers, and other closed receptacles containing solid waste). This definition does not include any release that results in exposure to persons solely within a workplace; release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 (68 Stat. 923); and the normal application of fertilizer. For the purpose of this chapter, release also means substantial threat of release.

"Remediation waste" means all solid waste, including all media (groundwater, surface water, soils, and sediments) and debris, that are managed for the purpose of

remediating a site in accordance with 9VAC20-81-45 or Part III (9VAC20-81-100 et seq.) of this chapter or under the Voluntary Remediation Regulations (9VAC20-160) or other regulated remediation program under DEQ oversight. For a given facility, remediation wastes may originate only from within the boundary of that facility, and may include wastes managed as a result of remediation beyond the boundary of the facility. Hazardous wastes as defined in 9VAC20-60, as well as "new" or "as generated" wastes, are excluded from this definition.

"Remediation waste management unit" or "RWMU" means an area within a facility that is designated by the director for the purpose of implementing remedial activities required under this chapter or otherwise approved by the director. An RWMU shall only be used for the management of remediation wastes pursuant to implementing such remedial activities at the facility.

"Responsible official" means one of the following:

1. For a business entity, such as a corporation, association, limited liability company, or cooperative: a duly authorized representative of such business entity if the representative is responsible for the overall operation of one or more operating facilities applying for or subject to a permit. The authority to sign documents must be assigned or delegated to such representative in accordance with procedures of the business entity;
2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively; or
3. For a municipality, state, federal, or other public agency: a duly authorized representative of the locality if the representative is responsible for the overall operation of one or more operating facilities applying for or subject to a permit. The authority to sign documents must be assigned or delegated to such representative in accordance with procedures of the locality.

"Rubbish" means combustible or slowly putrescible discarded materials that include but are not limited to trees, wood, leaves, trimmings from shrubs or trees, printed matter, plastic and paper products, grass, rags and other combustible or slowly putrescible materials not included under the term "garbage."

"Runoff" means any rainwater, leachate, or other liquid that drains over land from any part of a solid waste management facility.

"Run-on" means any rainwater, wastewater, leachate, or other liquid that drains over land onto any part of the solid waste management facility.

"Salvage" means the authorized, controlled removal of waste materials from a solid waste management facility.

"Sanitary landfill" means an engineered land burial facility for the disposal of household waste that is so located, designed, constructed, and operated to contain and isolate the waste so that it does not pose a substantial present or potential hazard to human health or the environment. A sanitary landfill also may receive other types of solid wastes, such as commercial solid waste, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, construction demolition debris, and nonhazardous industrial solid waste.

"Saturated zone" means that part of the earth's crust in which all voids are filled with water.

"Scavenging" means the unauthorized or uncontrolled removal of waste materials from a solid waste management facility.

"Scrap metal" means metal parts such as bars, rods, wire, empty containers, or metal pieces that are discarded material and can be used, reused, or reclaimed.

"Secondary containment" means an enclosure into which a container or tank is placed for the purpose of preventing discharge of wastes to the environment.

"Seismic impact zone" means an area with a 10% or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

"Semiannual" means an interval corresponding to approximately 180 days. For the purposes of scheduling monitoring activities, sampling within 30 days of the 180-day interval will be considered semiannual.

"Site" means all land and structures, other appurtenances, and improvements on them used for treating, storing, and disposing of solid waste. This term includes adjacent land within the facility boundary used for the utility systems such as repair, storage, shipping or processing areas, or other areas incident to the management of solid waste.

"Sludge" means any solid, semi-solid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of treated effluent from a wastewater treatment plant.

"Small landfill" means a landfill that disposed of 100 tons/day or less of solid waste during a representative period prior to October 9, 1993, and did not dispose of more than an average of 100 tons/day of solid waste each month between October 9, 1993, and April 9, 1994.

"Solid waste" means any of those materials defined as "solid waste" in 9VAC20-81-95.

"Solid waste disposal facility" means a solid waste management facility at which solid waste will remain after closure.

"Solid waste management facility" or "SWMF" means a site used for planned treating, storing, or disposing of solid waste. A facility may consist of several treatment, storage, or disposal units.

"Special wastes" mean solid wastes that are difficult to handle, require special precautions because of hazardous properties, or the nature of the waste creates waste management problems in normal operations. (See Part VI (9VAC20-81-610 et seq.) of this chapter.)

"Speculatively accumulated material" means any material that is accumulated before being used, reused, or reclaimed or in anticipation of potential use, reuse, or reclamation. Materials are not being accumulated speculatively when they can be used, reused, or reclaimed, have a feasible means of use, reuse, or reclamation available and 75% of the materials accumulated are being removed from the facility annually.

"State waters" means all water, on the surface and under the ground, wholly or partially within, or bordering the Commonwealth, or within its jurisdiction.

"Storage" means the holding of waste, at the end of which the waste is treated, disposed, or stored elsewhere.

"Structural fill" means an engineered fill with a projected beneficial end use, constructed using soil or fossil fuel combustion products spread and compacted with proper equipment and covered with a vegetated soil cap.

"Sudden event" means a one-time, single event such as a sudden collapse or a sudden, quick release of contaminants to the environment. An example would be the

sudden loss of leachate from an impoundment into a surface stream caused by failure of a containment structure.

"Surface impoundment or impoundment" means a facility or part of a facility that is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well.

"Surface waters" means all state waters that are not groundwater as defined in § 62.1-255 of the Code of Virginia.

"SW-846" means Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Second Edition, 1982 as amended by Update I (April, 1984), and Update II (April, 1985) and the third edition, November, 1986, as amended.

"Tank" means a stationary device, designed to contain an accumulation of liquid or semi-liquid components of solid waste that is constructed primarily of nonearthen materials that provide structural support.

"TEF" or "Toxicity Equivalency Factor" means a factor developed to account for different toxicities of structural isomers of polychlorinated dibenzodioxins and dibenzofurans and to relate them to the toxicity of 2,3,7,8-tetrachloro dibenzo-p-dioxin.

"Terminal" means the location of transportation facilities such as classification yards, docks, airports, management offices, storage sheds, and freight or passenger stations, where solid waste that is being transported may be loaded, unloaded, transferred, or temporarily stored.

"Thermal treatment" means the treatment of solid waste in a device that uses elevated temperature as the primary means to change the chemical, physical, or biological character, or composition of the solid waste.

"Tire chip" means a material processed from waste tires that is a nominal two square inches in size, and ranges from 1/4 inch to four inches in any dimension. Tire chips contain no wire protruding more than 1/4 inch.

"Tire shred" means a material processed from waste tires that is a nominal 40 square inches in size, and ranges from 4 inches to 10 inches in any dimension.

"Transfer station" means any solid waste storage or collection facility at which solid waste is transferred from collection vehicles to haulage vehicles for transportation to a central solid waste management facility for disposal, incineration, or resource recovery.

"Trash" means combustible and noncombustible discarded materials and is used interchangeably with the term rubbish.

"Treatment" means, for the purpose of this chapter, any method, technique, or process, including but not limited to incineration, designed to change the physical, chemical, or biological character or composition of any waste to render it more stable, safer for transport, or more amenable to use, reuse, reclamation, recovery, or disposal.

"Underground source of drinking water" means an aquifer or its portion:

1. Which contains water suitable for human consumption; or
2. In which the groundwater contains less than 10,000 mg/liter total dissolved solids.

"Unit" means a discrete area of land used for the disposal of solid waste.

"Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural

components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes.

"Uppermost aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility boundary.

"Used or reused material" means a material that is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product, excepting those materials possessing distinct components that are recovered as separate end products; or
2. Employed in a particular function or application as an effective substitute for a commercial product or natural resources.

"Vector" means a living animal, insect, or other arthropod that transmits an infectious disease from one organism to another.

"Vegetative waste" means decomposable materials generated by yard and lawn care or land-clearing activities and includes, but is not limited to, leaves, grass trimmings, woody wastes such as shrub and tree prunings, bark, limbs, roots, and stumps.

"Vermicomposting" means the controlled and managed process by which live worms convert organic residues into fertile excrement.

"Vertical design capacity" means the maximum design elevation specified in the facility's permit or if none is specified in the permit, the maximum elevation based on a 3:1 slope from the waste disposal unit boundary.

"VPDES" (Virginia Pollutant Discharge Elimination System) means the Virginia system for the issuance of permits pursuant to the Permit Regulation (9VAC25-31), the State Water Control Law (§ 62.1-44.2 et seq. of the Code of Virginia), and § 402 of the Clean Water Act (33 USC § 1251 et seq.).

"Washout" means carrying away of solid waste by waters of the base flood.

"Waste-derived fuel product" means a solid waste or combination of solid wastes that have been treated (altered physically, chemically, or biologically) to produce a fuel product with a minimum heating value of 5,000 BTU/lb. Solid wastes used to produce a waste-derived fuel product must have a heating value, or act as binders, and may not be added to the fuel for the purpose of disposal. Waste ingredients may not be listed or characteristic hazardous wastes. The fuel product must be stable at ambient temperature, and not degraded by exposure to the elements. This material may not be "refuse derived fuel (RDF)" as defined in 9VAC5-40-890.

"Waste management boundary" means the vertical plane located at the boundary line of the area approved in the Part A application for the disposal of solid waste and storage of leachate. This vertical plane extends down into the uppermost aquifer and is within the facility boundary.

"Waste pile" means any noncontainerized accumulation of nonflowing, solid waste that is used for treatment or storage.

"Waste tire" means a tire that has been discarded because it is no longer suitable for its original intended purpose because of wear, damage or defect. (See 9VAC20-150 for other definitions dealing with the waste tire program.)

"Wastewaters" are, for the purpose of this chapter, wastes that contain less than 1.0% by weight total organic carbon (TOC) and less than 1.0% by weight total suspended solids (TSS).

"Water pollution" means such alteration of the physical, chemical, or biological properties of any state water as will or is likely to create a nuisance or render such waters:

1. Harmful or detrimental or injurious to the public health, safety, or welfare, or to the health of animals, fish, or aquatic life or plants;
2. Unsuitable, with reasonable treatment, for use as present or possible future sources of public water supply; or
3. Unsuitable for recreational, commercial, industrial, agricultural, or other reasonable uses, provided that:
 - a. An alteration of the physical, chemical, or biological properties of state waters or a discharge or deposit of sewage, industrial wastes, or other wastes to state waters by any owner that by itself is not sufficient to cause pollution but which in combination with such alteration or discharge or deposit to state waters by other persons is sufficient to cause pollution;
 - b. The discharge of untreated sewage by any person into state waters; and
 - c. The contribution to the degradation of water quality standards duly established by the State Water Control Board, are "pollution" for the terms and purposes of this chapter.

"Water table" means the upper surface of the zone of saturation in groundwaters in which the hydrostatic pressure is equal to the atmospheric pressure.

"Waters of the United States" or "waters of the U.S." means:

1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters, including interstate "wetlands";
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mud flats, sand flats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including:
 - a. Any such waters that are or could be used by interstate or foreign travelers for recreational or other purposes;
 - b. Any such waters from which fish or shellfish are or could be taken and sold in interstate or foreign commerce;
 - c. Any such waters that are used or could be used for industrial purposes by industries in interstate commerce;
 - d. All impoundments of waters otherwise defined as waters of the United States under this definition;
 - e. Tributaries of waters identified in subdivisions 3 a through d of this definition;
 - f. The territorial sea; and
 - g. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in subdivisions 3 a through f of this definition.

"Wetlands" mean those areas that are defined by the federal regulations under 33 CFR Part 328, as amended.

"White goods" means any stoves, washers, hot water heaters, and other large appliances.

"Working face" means that area within a landfill that is actively receiving solid waste for compaction and cover.

"Yard waste" is a subset of vegetative waste and means decomposable waste materials generated by yard and lawn care and includes leaves, grass trimmings, brush, wood chips, and shrub and tree trimmings. Yard waste shall not include roots or stumps that exceed 12 inches in diameter.

Part II
General Information

9VAC20-81-20. Policy.

It is the policy of the Virginia Waste Management Board to promote the development of comprehensive waste management programs that include the following components of a waste management hierarchy:

1. Source reduction.
2. Reuse.
3. Recycling.
4. Resource recovery (waste to energy).
5. Incineration.
6. Landfilling.

9VAC20-81-25. Purpose of chapter.

A. The purpose of this chapter is to establish standards and procedures pertaining to the management of solid wastes by providing the requirements for siting, design, construction, operation, maintenance, closure, and postclosure care of solid waste management facilities in the Commonwealth in order to protect the public health, public safety the environment, and our natural resources.

B. This chapter provides for the prohibition of open dumping of solid waste to protect public health and safety and the environment.

C. This chapter sets forth the requirements for undertaking corrective actions at solid waste management facilities.

9VAC20-81-30. Administration of chapter.

A. The Virginia Waste Management Board promulgates and enforces regulations that it deems necessary to protect the public health, public safety, the environment, and natural resources.

B. The director is authorized and directed to administer this chapter in accordance with the Virginia Waste Management Act, (§§ 10.1-1400 through 10.1-1457 of the Code of Virginia).

C. At any time this chapter requires the director to review, approve, disapprove, or modify, any application for a permit or any other submission by an applicant or permittee, such action by the director shall be taken in a timely manner.

9VAC20-81-35. Applicability of chapter.

A. This chapter applies to all persons who treat, store, dispose, or otherwise manage solid wastes as defined in Part III (9VAC20-81-100 et seq.) of this chapter.

B. All facilities that were permitted prior to March 15, 1993, and upon which solid waste has been disposed of prior to October 9, 1993, may continue to receive solid waste until they have reached their vertical design capacity or until the closure date established pursuant to § 10.1-1413.2 of the Code of Virginia, in Table 2.1 provided:

1. The facility is in compliance with the requirements for liners and leachate control in effect at the time of permit issuance.

2. On or before October 9, 1993, the owner or operator of the solid waste management facility submitted to the director:

a. An acknowledgment that the owner or operator is familiar with state and federal law and regulations pertaining to solid waste management facilities operating after October 9, 1993, including postclosure care, corrective action, and financial responsibility requirements;

b. A statement signed by a professional engineer that he has reviewed the regulations established by the department for solid waste management facilities, including the open dump criteria contained therein, that he has inspected the facility and examined the monitoring data compiled for the facility in accordance with applicable regulations and that, on the basis of his inspection and review, he has concluded:

(1) That the facility is not an open dump;

(2) That the facility does not pose a substantial present or potential hazard to human health and the environment; and

(3) That the leachate or residues from the facility do not pose a threat of contamination or pollution of the air, surface water, or groundwater in a manner constituting an open dump or resulting in a substantial present or potential hazard to human health or the environment; and

c. A statement signed by the owner or operator:

(1) That the facility complies with applicable financial assurance regulations; and

(2) Estimating when the facility will reach its vertical design capacity.

3. Enlargement or closure of these facilities shall conform with the following subconditions:

a. The facility may not be enlarged prematurely to avoid compliance with this chapter when such enlargement is not consistent with past operating practices, the permit, or modified operating practices to ensure good management.

b. The facility shall not dispose of solid waste in any portion of a landfill disposal area that has received final cover or has not received waste for a period of one year, in accordance with 9VAC20-81-160 C. The facility shall notify the department, in writing, within 30 days, when an area has received final cover or has not received waste for a one-year period, in accordance with 9VAC20-81-160 C. However, a facility may apply for a permit, and if approved, can construct and operate a new cell that overlays ("piggybacks") over a closed area in accordance with the permit requirements of this chapter.

c. The facilities subject to the restrictions in this subsection are listed in Table 2.1. The closure dates were established in: Final Prioritization and Closure Schedule for HB 1205 Disposal Areas (DEQ, September 2001). The publication of these tables is for the convenience of the regulated community and does not change established dates. Any facility, including, but not limited to those listed in Table 2.1, must cease operation if that facility meets any of the open dump criteria listed in 9VAC20-81-45 A 1.

d. Those facilities assigned a closure date in accordance with § 10.1-1413.2 of the Code of Virginia shall designate on a map, plat, diagram, or other engineered drawing, areas in which waste will be disposed of in accordance

with Table 2.1 until the latest cessation of waste acceptance date as listed in Table 2.1 is achieved. This map or plat shall be placed in the operating record and a copy shall be submitted upon request to the department in order to track the progress of closure of these facilities. If the facility already has provided this information under 9VAC20-81-160, then the facility may refer to that information.

TABLE 2.1
Final Prioritization and Closure Schedule For House Bill (HB) 1205 Disposal Areas

Solid Waste Permit Number and Site Name	Location	Department Regional Office ¹	Latest Cessation of Waste Acceptance Date ²
429 - Fluvanna County Sanitary Landfill	Fluvanna County	VRO	12/31/2007
92 - Halifax County Sanitary Landfill ³	Halifax County	BRRO	12/31/2007
49 - Martinsville Landfill	City of Martinsville	BRRO	12/31/2007
14 - Mecklenburg County Landfill	Mecklenburg County	BRRO	12/31/2007
228 - Petersburg City Landfill ³	City of Petersburg	PRO	12/31/2007
31 - South Boston Sanitary Landfill	Town of South Boston	BRRO	12/31/2007
204 - Waynesboro City Landfill	City of Waynesboro	VRO	12/31/2007
91 - Accomack County Landfill – Bobtown South	Accomack County	TRO	12/31/2012
580 – Bethel Landfill ³	City of Hampton	TRO	12/31/2012
182 - Caroline County Landfill	Caroline County	NVRO	12/31/2012
149 - Fauquier County Landfill	Fauquier County	NVRO	12/31/2012
405 - Greensville County Landfill	Greensville County	PRO	12/31/2012
29 - Independent Hill Landfill ³	Prince William County	NVRO	12/31/2012
1 - Loudoun County Sanitary Landfill	Loudoun County	NVRO	12/31/2012
194 - Louisa County Sanitary Landfill	Louisa County	NVRO	12/31/2012

227 - Lunenburg County Sanitary Landfill	Lunenburg County	BRRO	12/31/2012
507 - Northampton County Landfill	Northampton County	TRO	12/31/2012
90 - Orange County Landfill	Orange County	NVRO	12/31/2012
75 - Rockbridge County Sanitary Landfill	Rockbridge County	VRO	12/31/2012
23 - Scott County Landfill	Scott County	SWRO	12/31/2012
587 - Shoosmith Sanitary Landfill ³	Chesterfield County	PRO	12/31/2012
417 - Southeastern Public Service Authority Landfill ³	City of Suffolk	TRO	12/31/2012
461 - Accomack County Landfill #2	Accomack County	TRO	12/31/2020
86 - Appomattox County Sanitary Landfill	Appomattox County	BRRO	12/31/2020
582 - Botetourt County Landfill ³	Botetourt County	BRRO	12/31/2020
498 - Bristol City Landfill	City of Bristol	SWRO	12/31/2020
72 - Franklin County Landfill	Franklin County	BRRO	12/31/2020
398 - Virginia Beach Landfill #2 – Mount Trashmore II ³	City of Virginia Beach	TRO	12/31/2020

Notes:

¹ Department of Environmental Quality Regional Offices:

BRRO	Blue Ridge Regional Office
NVRO	Northern Virginia Regional Office
PRO	Piedmont Regional Office
SWRO	Southwest Regional Office
TRO	Tidewater Regional Office
VRO	Valley Regional Office

² This date means the latest date that the disposal area must cease accepting waste.

³ A portion of these facilities operated under HB 1205 and another portion currently is compliant with Subtitle D requirements.

C. Facilities are authorized to expand beyond the waste boundaries existing on October 9, 1993, as follows:

1. Existing captive industrial landfills.

a. Existing nonhazardous industrial waste facilities that are located on property owned or controlled by the generator of the waste disposed of in the facility shall comply with all the provisions of this chapter except as shown in subdivision 1 of this subsection.

b. Facility owners or operators shall not be required to modify their facility permit in order to expand a captive industrial landfill beyond the waste boundaries existing on October 9, 1993. Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993, shall be constructed in accordance with the requirements in effect at the time of permit issuance.

c. Owners or operators of facilities that are authorized under subdivision 1 of this subsection to accept waste for disposal beyond the waste boundaries existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-81-120.

d. Facilities authorized for expansion in accordance with subdivision 1 of this subsection are limited to expansion to the limits of the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.

2. Other existing industrial waste landfills.

a. Existing nonhazardous industrial waste facilities that are not located on property owned or controlled by the generator of the waste disposed of in the facility shall comply with all the provisions of this chapter except as shown in subdivision 2 of this subsection.

b. Facility owners or operators shall not be required to modify their facility permit in order to expand an industrial landfill beyond the waste boundaries existing on October 9, 1993. Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993, shall be constructed in accordance with the requirements of 9VAC20-81-130.

c. Prior to the expansion of any such facility, the owner or operator shall submit to the department a written notice of the proposed expansion at least 60 days prior to commencement of construction. The notice shall include recent groundwater monitoring data sufficient to determine that the facility does not pose a threat of contamination of groundwater in a manner constituting an open dump or creating a substantial present or potential hazard to human health or the environment (see 9VAC20-81-45). The director shall evaluate the data included with the notification and may advise the owner or operator of any additional requirements that may be necessary to ensure compliance with applicable laws and prevent a substantial present or potential hazard to health or the environment.

d. Owners or operators of facilities which are authorized under subdivision 2 of this subsection to accept waste for disposal beyond the waste boundaries existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-81-120 and 9VAC20-81-130.

- e. Facilities authorized for expansion in accordance with subdivision 2 of this subsection are limited to expansion to the limits of the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.
3. Existing construction/demolition/debris landfills.
- a. Existing facilities that accept only construction/demolition/debris waste shall comply with all the provisions of this chapter except as shown in subdivision 3 of this subsection.
 - b. Facility owners or operators shall not be required to modify their facility permit in order to expand a construction/demolition/debris landfill beyond the waste boundaries existing on October 9, 1993. Liners and leachate collection systems constructed beyond the waste boundaries existing on October 9, 1993, shall be constructed in accordance with the requirements of 9VAC20-81-130.
 - c. Prior to the expansion of any such facility, the owner or operator shall submit to the department a written notice of the proposed expansion at least 60 days prior to commencement of construction. The notice shall include recent groundwater monitoring data sufficient to determine that the facility does not pose a threat of contamination of groundwater in a manner constituting an open dump or creating a substantial present or potential hazard to human health or the environment (see 9VAC20-81-45). The director shall evaluate the data included with the notification and may advise the owner or operator of any additional requirements that may be necessary to ensure compliance with applicable laws and prevent a substantial present or potential hazard to health or the environment.
 - d. Owners or operators of facilities which are authorized under subdivision 3 of this subsection to accept waste for disposal beyond the active portion of the landfill existing on October 9, 1993, shall ensure that such expanded disposal areas maintain setback distances applicable to such facilities in 9VAC20-81-120 and 9VAC20-81-130.
 - e. Facilities, or portions thereof, which have reached their vertical design capacity shall be closed in compliance with 9VAC20-81-160.
 - f. Facilities authorized for expansion in accordance with subdivision 3 of this subsection are limited to expansion to the permitted disposal area existing on October 9, 1993, or the facility boundary existing on October 9, 1993, if no discrete disposal area is defined in the facility permit.
4. Facilities or units undergoing expansion in accordance with the partial exemptions created by subdivision 1 b, 2 b, or 3 b of this subsection of this subsection may not receive hazardous wastes generated by the exempt small quantity generators, as defined by the Virginia Hazardous Waste Management Regulations (9VAC20-60), for disposal on the expanded portions of the facility. Other wastes that require special handling in accordance with the requirements of Part VI (9VAC20-81-610 et seq.) of this chapter or that contain hazardous constituents that would pose a risk to health or environment, may only be accepted with specific approval by the director.
5. Nothing in subdivisions 1 b, 2 b, and 3 b of this subsection shall alter any requirement for ground water monitoring, financial responsibility, operator certification, closure, postclosure care, operation, maintenance, or corrective action imposed under this chapter, or impair the powers of the director to revoke

or modify a permit pursuant to § 10.1-1409 of the Virginia Waste Management Act or Part V (9VAC20-81-400 et seq.) of this chapter.

D. An owner or operator of a previously unpermitted facility or unpermitted activity that managed materials previously exempt or excluded from this chapter shall submit a complete application for a solid waste management facility permit, permit by rule or a permit modification, as applicable, in accordance with Part V (9VAC20-81-430 et seq.) of this chapter within six months after these materials have been defined or identified as solid wastes. If the director finds that the application is complete, the owner or operator may continue to manage the newly defined or identified waste until a permit or permit modification decision has been rendered or until a date two years after the change in definition whichever occurs sooner, provided however, that in so doing he shall not operate or maintain an open dump, a hazard, or a nuisance.

Owners or operators of solid waste management facilities in existence prior to September 24, 2003, shall now be in compliance with this chapter. Where conflicts exist between the existing facility permit and the new requirements of the regulations, the regulations shall supersede the permit except where the standards in the permit are more stringent than the regulation. Language in an existing permit shall not act as a shield to compliance with the regulation, unless a variance to the regulations has been approved by the director in accordance with the provisions of Part VII (9VAC20-81-700 et seq.) of this chapter. Existing facility permits will not be required to be updated to eliminate requirements conflicting with the regulation, except at the request of the director or if a permit is modified for another reason. However, all sanitary landfills and incinerators that accept waste from jurisdictions outside of Virginia must have submitted the materials required under 9VAC20-81-100 E 4 by March 22, 2004.

E. This chapter is not applicable to landfill units closed in accordance with regulations or permits in effect prior to December 21, 1988, unless releases from these closed landfills meet the open dump criteria found in 9VAC20-81-45, or the closed landfills are found to be a hazard or a nuisance under subdivision 21 of § 10.1-1402 of the Code of Virginia, or a site where improper waste management has occurred under subdivision 19 of § 10.1-1402 of the Code of Virginia.

9VAC20-81-40. Prohibitions.

A. No person shall operate any sanitary landfill or other facility for the disposal, treatment, or storage of solid waste without a permit from the director.

B. No person shall allow waste to be disposed of or otherwise managed on his property except in accordance with this chapter.

C. It shall be the duty of all persons to dispose of or otherwise manage their solid waste in a legal manner.

D. Any person who violates subsection A, B, or C of this section shall immediately cease the activity of improper management and the treatment, storage, or disposal of any additional wastes and shall initiate such removal, cleanup, or closure in place.

E. Management of lead acid batteries.

1. No person shall place a used lead acid battery in mixed municipal solid waste or discard or otherwise dispose of a lead acid battery except by delivery to a battery retailer or wholesaler, or to a secondary lead smelter, or to a collection or reclamation facility authorized under the laws of the Commonwealth or by the United States Environmental Protection Agency.

2. No battery retailer shall dispose of a used lead acid battery except by delivery to:

- a. The agent of a battery wholesaler or a secondary lead smelter;
- b. A battery manufacturer for delivery to a secondary smelter; or
- c. A collection or reclamation facility authorized under the laws of the Commonwealth or by the United States Environmental Protection Agency.

3. No person selling new lead acid batteries at wholesale shall refuse to accept from customers at the point of transfer, used lead acid batteries of the type and in a quantity at least equal to the number of new batteries purchased, if offered by customers.

4. The provisions of subdivisions 1 through 3 of this subsection shall not be construed to prohibit any person who does not sell new lead acid batteries from collecting and reclaiming such batteries.

F. Any locality may, by ordinance, prohibit the disposal of cathode ray tubes (CRTs) in any waste to energy or solid waste disposal facility within its jurisdiction if it has implemented a CRT recycling program that meets the requirements of § 10.1-1425.26 of the Code of Virginia.

9VAC20-81-45. Open dumps.

A. Prohibition.

1. No person shall dispose of solid waste in open dumps, nor own, operate or allow to be operated on his property an open dump as defined in subsection B of this section or § 10.1-1400 of the Code of Virginia. Both permitted and unpermitted sites or facilities may be classified as open dumps.

2. Any person found to be in violation of this section shall be ordered to this section shall immediately cease treatment, storage, and disposal of any additional solid waste and shall take measures to abate improper management of the solid waste and come into compliance with the requirements of this chapter.

B. Criteria – Incorporation of 40 CFR Part 257.1 through 257.3-8 by reference.

1. Except as otherwise provided, the regulations of the United States Environmental Protection Agency set forth in 40 CFR Part 257.1 through 257.3-8 are adopted herein and incorporated by reference as part of the Virginia Solid Waste Management Regulations. Except as otherwise provided, all material definitions, reference materials and other ancillaries that are part of 40 CFR Part 257.1 through 257.3-8 are also hereby incorporated as part of the Virginia Solid Waste Management Regulations.

2. In all locations in these regulations where 40 CFR 257.1 through 257.3-8 are incorporated by reference, the following additions, modifications, and exceptions shall amend the incorporated text for the purpose of its incorporation into these regulations:

a. Sections 40 CFR 257.1(b) and 40 CFR 257.3-5 are not included in the incorporation of 40 CFR 257.1 through 257.3-8 by reference and are not part of the Virginia Solid Waste Management Regulations.

b. The following text shall be substituted for 40 CFR 257.1(a): "Unless otherwise provided, the criteria in §§ 257.1 through 257.3-8 are adopted for determining which solid waste disposal facilities and practices are a nuisance and pose a reasonable probability of adverse effects on health or the

environment under §§ 1008(a)(3) and 4004(a) of the Resource Conservation and Recovery Act, 42 USC § 6901 et seq. (1976) (RCRA) and the Virginia Waste Management Act, § 10.1-1400 of the Code of Virginia (Act)."

c. The following text shall be substituted for 40 CFR 257.1(a)(1): "Facilities failing to satisfy the criteria in §§ 257.1 through 257.3-8 are considered open dumps, which are prohibited under section 4005 of RCRA and § 10.1-1408.1 of the Act."

d. The following text shall be substituted for 40 CFR 257.1(a)(2): "Practices failing to satisfy the criteria in §§ 257.1 through 257.3-8 constitute open dumping, which is prohibited under section 4005 of RCRA and § 10.1-1408.1 of the Act."

e. In addition to those exceptions found in 40 CFR 257.1(c), the open dump criteria does not apply to sites actively enrolled in the Voluntary Remediation Program (9VAC20-160) or sites that have successfully completed the Voluntary Remediation Program in accordance with all conditions and requirements of their Certificates of Satisfactory Completion.

f. In addition to those exceptions found in 40 CFR 257.1(c), the open dump criteria shall not apply to sites that are undergoing remediation per the requirements of CERCLA or the RCRA Corrective Action Program and are doing so with the department's and/or the Environmental Protection Agency's oversight.

C. Site evaluation and remedial action.

1. If a site is a potential or probable open dump, a site evaluation may be conducted. This site evaluation will be conducted by the department in order to determine if further action is required under this section. The site evaluation will include but is not limited to any records that can be obtained from the owner, operator, or other responsible party as well as all documented observations by department personnel regarding the following:

- a. The location of the site;
- b. The amount, type, and source of the waste at the site;
- c. The permit status for the activities taking place at the site; and
- d. A preliminary evaluation of the site with respect to the criteria outlined in subsection B of this section.

2. Based on the criteria of subsection B and the information gathered under the provisions of subdivision 1 of this subsection, the department will make a determination that the site is or is not an open dump.

3. If the department determines that the site is an open dump then the department will make a recommendation for remedial action as follows:

- a. Remedial action is required; or
- b. Removal of the wastes from the site and disposal at a facility permitted to accept the wastes is required. The department may require submission of evidence of proper management of the removed waste and may require evidence, including confirmatory sampling, of the removal of solid waste and any hazardous constituents. A site inspection will be preformed by the department to confirm the removal of the waste materials.

4. The site evaluation conducted under this subsection may be performed pursuant to an administrative or judicial order or other appropriate mechanism as chosen by the department.

5. Pursuant to the recommendation(s) made under subdivision 3 of this subsection, any required remedial action as deemed necessary by the department shall be performed by the responsible party pursuant to an administrative or judicial order or other appropriate mechanism as chosen by the department.

D. Process and Appeal

1. Any case decision by the department based on the requirements of this section shall be subject to the process and appeal provisions of the Virginia Administrative Process Act (2.2-4000, et. seq.).

2. A final determination and an administrative order requiring remedial action may be obtained in the same hearing or proceeding subject to the Virginia Administrative Process Act (2.2-4000 et. seq.).

9VAC20-81-50. Enforcement and appeal.

A. All administrative enforcement and appeals taken from actions of the director relative to the provisions of this chapter shall be governed by the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

B. The Virginia Waste Management Board or the director may enforce the provisions of this chapter utilizing all applicable procedures under the law. The powers of the board and the director include, but are not limited to, those established under Chapter 11.1 (§ 10.1-1182 et seq. (especially in § 10.1-1186)) and in Article 8 (§ 10.1-1455 et seq.) of Chapter 14 of Title 10.1 of the Code of Virginia. These sections describe the right of entry for inspections, the issuance of orders, penalties, injunctions, and other provisions and procedures for enforcement of these regulations.

9VAC20-81-60. Ten-year permit review.

The director shall review and issue written findings on the environmental compliance history of each permittee, material changes, if any, in key personnel, and technical limitations, standards, or regulations on which the original permit was based. The time period for review of each permit shall be at least once every 10 years. If, upon such review, the director finds that repeated material or substantial violations of the permittee or material changes in the permittee's key personnel would make continued operation of the facility not in the best interests of human health or the environment, the director shall modify or revoke the permit, in accordance with provisions of Part V (9VAC20-81-400 et seq.) of this chapter. Whenever such review is undertaken, the director may modify the permit to include additional limitations, standards, or conditions when the technical limitations, standards, or regulations on which the original permit was based have been changed by statute or amended by regulation or when any of the conditions in § 10.1-1409 B of the Virginia Waste Management Act exist. The director may deny, revoke, or suspend any permit for any of the grounds listed under § 10.1-1409 A of the Code of Virginia.

9VAC20-81-70. Public participation and information.

A. All permits for solid waste management facilities will be subject to public participation, as specified in Part V (9VAC20-81-400 et seq.) of this chapter.

B. Modifications to solid waste management facility permits shall be subject to public participation in accordance with Part V (9VAC20-81-400 et seq.) of this chapter.

C. Dockets of all permitting actions, enforcement actions, and administrative actions relative to this chapter shall be available to the public for review, consistent with the Commonwealth of Virginia Administrative Process Act, Virginia Freedom of Information Act, and the provisions of this chapter.

D. Public participation in the compliance evaluation and enforcement programs is encouraged. The department will:

1. Investigate all citizen complaints and provide written responses to all signed, written complaints from citizens, concerning matters within the board's purview;
2. Not oppose intervention by any citizen in a suit brought before a court by the department as a result of the enforcement action; and
3. Provide notice on the department's Internet website; and provide at least 30 days of public comment on proposed settlements of civil enforcement actions except where the settlement requires some immediate action. Where a public comment period is not held prior to the settlement of an enforcement action, public notice will still be provided following the settlement.

9VAC20-81-80. Solid waste information and assessment program.

A. The owners or operators of all permitted solid waste management facilities that treat, store, or dispose of solid waste shall report by March 31 of each year the amount of solid waste, by weight or volume, received and managed by the facility during the preceding calendar year. The report shall identify solid waste by the following categories: (i) municipal solid waste, (ii) construction and demolition debris, (iii) industrial waste, (iv) regulated medical waste, (v) vegetative and yard waste, (vi) incinerator ash, (vii) sludge other than sludge that is land applied in accordance with § 62.1-44.19:3.3 of the Code of Virginia, (viii) tires, (ix) white goods, (x) friable asbestos, (xi) petroleum-contaminated soil, and (xii) other special waste. For each such category the report shall include an estimate of the amount that was generated outside of the Commonwealth and the state or local jurisdictions where such waste originated. The report shall also estimate the amount of solid waste managed or disposed of by each of the following methods: (i) recycling, (ii) composting, (iii) landfilling, (iv) incineration, (v) sending offsite for further management, and (vi) stored on site on December 31 of the reporting year. Information on the available capacity and expected life of the facilities, at the disposal rates submitted in this subsection, shall be included in the annual report required by this section.

B. At the option of the facility owner, the data collected may include an accounting of the facility's economic benefits to the locality where the facility is located including the value of disposal and recycling facilities provided to the locality at no cost or reduced cost, direct employment associated with the facility, and other economic benefits resulting from the facility during the preceding calendar year.

C. No facility shall be required pursuant to this section to provide information that is a trade secret as defined in § 59.1-336 of the Code of Virginia.

D. The reporting form to be used to fulfill the reporting requirement of this part is DEQ Form DEQ 50-25 (Solid Waste Information and Assessment Program—Reporting Table).

E. This section shall not apply to captive waste management facilities including captive industrial landfills.

9VAC20-81-90. Relationship with other regulations promulgated by the Virginia Waste Management Board.

A. Virginia Hazardous Waste Management Regulations (9VAC20-60).

1. Solid wastes that have been declared hazardous or a universal waste by the generator in accordance with 40 CFR 262.11, as amended, or that are regulated as hazardous wastes by the Commonwealth or another state, and will be treated, stored, or disposed of in Virginia shall be managed in accordance with the requirements of 9VAC20-60 and not 9VAC20-81.

2. Any material from a state other than Virginia that is classified as a hazardous waste in that state shall be managed in accordance with 9VAC20-60.

3. Wastes generated by generators who are conditionally exempt pursuant to 40 CFR 261.5 may be managed in solid waste management facilities provided that:

- a. (i) A specific approval is obtained from the director for acceptance of the material at a facility with an approved liner and leachate collection system; or
- (ii) it is included in the facility permit; and

b. Records are kept of the actual amount, type, and source of these wastes.

B. Regulated Medical Waste Management Regulations (9VAC20-120). Solid wastes that are defined as regulated medical wastes by the Regulated Medical Waste Management Regulations shall be managed in accordance with those regulations. Regulated medical wastes that are excluded or exempt by 9VAC20-120 shall be regulated by this chapter.

C. Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70). 9VAC20-70 specifies the requirements for financial assurance and allowable financial assurance mechanisms. Solid waste management facilities shall provide financial assurance in accordance with 9VAC20-70.

D. Solid Waste Management Facility Permit Action Fees and Annual Fees (9VAC20-90). All applicants for solid waste management facility permits are required to pay a fee in accordance with the schedule shown in 9VAC20-90. All solid waste management facilities shall pay annual fees in accordance with 9VAC20-90, as applicable.

E. Solid Waste Planning and Recycling Regulations (9VAC20-130). 9VAC20-130 establishes a framework for local governments to plan for solid waste management needs and a mechanism for tracking recycling rates and solid waste management plan contents.

F. Transportation of Solid and Medical Wastes on State Waters (9VAC20-170). 9VAC20-170 establishes the standards and procedures pertaining to the commercial transport, loading and offloading of solid wastes or regulated medical wastes upon the navigable waters of the Commonwealth.

G. Voluntary Remediation Regulations (9VAC20-160). 9VAC20-160 establishes standards and procedures for the Virginia Voluntary Remediation Program.

H. Coal Combustion Byproduct Regulations (9VAC20-85). 9VAC20-85 establishes standards for the use of fossil fuel combustion products and to establish standards for

siting, design, construction, operation, and administrative procedures pertaining to their use, reuse, or reclamation other than in a manner addressed by this chapter.

9VAC20-81-95. Identification of solid waste.

A. Wastes identified in this part are solid wastes that are subject to this chapter unless regulated pursuant to other applicable regulations issued by the department.

B. Except as otherwise provided, the definition of solid waste per 40 CFR 261.2 as incorporated by 9VAC20-60-261, as amended, is also hereby incorporated as part of this chapter. Except as otherwise provided, all material definitions, reference materials and other ancillaries that are a part of 9VAC20-60-261, as amended, are also hereby incorporated as part of this chapter as well.

C. Except as otherwise modified or excepted by 9VAC20-60, the materials listed in the regulations of the United States Environmental Protection Agency set forth in 40 CFR 261.4(a) are considered a solid waste for the purposes of this chapter. However, these materials are not regulated under the provisions of this chapter if all conditions specified therein are met. This list and all material definitions, reference materials and other ancillaries that are part of 40 CFR Part 261.4.(a), as incorporated, modified and/or accepted by 9VAC20-60 are incorporated as part of this chapter. In addition, the following materials are not solid wastes for the purpose of this chapter:

1. Materials generated by any of the following, which are returned to the soil as fertilizers:
 - a. The growing and harvesting of agricultural crops.
 - b. The raising and husbanding of animals, including animal manures and used animal bedding.
2. Mining overburden returned to the mine site.
3. Recyclable materials used in manner constituting disposal per 9VAC20-60-266.
4. Wood wastes burned for energy recovery.
5. Materials that are:
 - a. Used or reused, or prepared for use or reuse, as an ingredient in an industrial process to make a product, or as effective substitutes for commercial products or natural resources provided the materials are not being reclaimed or accumulated speculatively; or
 - b. Returned to the original process from which they are generated.
6. Materials that are beneficially used as determined by the department under this subsection. The department may consider other waste materials and uses to be beneficial in accordance with the provisions of 9VAC20-81-97.
7. The following materials and uses listed in this part are exempt from this chapter as long as they are managed so they do not create an open dump, hazard, or public nuisance. These materials and the designated use are considered a beneficial use of waste materials:
 - a. Clean wood, wood chips, or bark from land clearing, logging operations, utility line clearing and maintenance operations, pulp and paper production, and wood products manufacturing, when these materials are placed in commerce for service as mulch, landscaping, animal bedding, erosion control, habitat mitigation, wetlands restoration, or bulking agent at a compost

facility operated in compliance with Part IV (9VAC20-81-300 et seq.) of this chapter;

b. Clean wood combustion residues when used for pH adjustment in compost, liquid absorbent in compost, or as a soil amendment or fertilizer, provided the application rate of the wood ash is limited to the nutrient need of the crop grown on the land on which the wood combustion residues will be applied and provided that such application meets the requirements of the Virginia Department of Agriculture and Consumer Services (2VAC5-400 and 2VAC5-410);

c. Compost that satisfies the applicable requirements of the Virginia Department of Agriculture and Consumer Services (2VAC5-400 and 2VAC5-410);

d. Nonhazardous, contaminated soil that has been excavated as part of a construction project and that is used as backfill for the same excavation or excavations containing similar contaminants at the same site, at concentrations at the same level or higher. Excess contaminated soil from these projects is subject to the requirements of this chapter;

e. Nonhazardous petroleum contaminated soil that has been treated to the satisfaction of the department in accordance with 9VAC20-81-660;

f. Nonhazardous petroleum contaminated soil when incorporated into asphalt pavement products;

g. Solid wastes that are approved in advance of the placement, in writing, by the department or that are specifically mentioned in the facility permit for use as alternate daily cover material or other protective materials for landfill liner or final cover system components;

h. Fossil fuel combustion products when used as a material in the manufacturing of another product (e.g., concrete, concrete products, lightweight aggregate, roofing materials, plastics, paint, flowable fill) or as a substitute for a product or material resource (e.g., blasting grit, roofing granules, filter cloth pre-coat for sludge dewatering, pipe bedding);

i. Tire chips and tire shred when used as a sub base fill for road base materials or asphalt pavements when approved by the Virginia Department of Transportation or by a local governing body;

j. Tire chips, tire shred, and ground rubber used in the production of commercial products such as mats, pavement sealers, playground surfaces, brake pads, blasting mats, and other rubberized commercial products;

k. Tire chips and tire shred when used as backfill in landfill gas or leachate collection pipes, recirculation lines, and drainage material in landfill liner and cover systems, and gas interception or remediation applications;

l. Waste tires, tire chips or tire shred when burned for energy recovery or when used in pyrolysis, gasification, or similar treatment process to produce fuel;

m. "Waste derived fuel product," as defined in 9VAC20-81-10, derived from nonhazardous solid waste;

n. Uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil, and rock placed in commerce for service as a substitute for conventional aggregate; and

o. Clean, ground gypsum wallboard when used as a soil amendment or fertilizer, provided the following conditions are met:

(1) No components of the gypsum wallboard have been glued, painted, or otherwise contaminated from manufacture or use (e.g., waterproof or fireproof drywall) unless otherwise processed to remove contaminants.

(2) The gypsum wallboard shall be processed so that 95% of the gypsum wallboard is less than 1/4 inch by 1/4 inch in size, unless an alternate size is approved by the department.

(3) The gypsum wallboard shall be applied only to agricultural, silvicultural, landscaped, or mined lands or roadway construction sites that need fertilization.

(4) The application rate for the ground gypsum wallboard shall not exceed the following rates.

Region	Rate
Piedmont, Mountains, and Ridge and Valley	250 lbs/1,000 ft ²
Coastal Plain	50 lbs/1,000 ft ²

Note: These weights are for dry ground gypsum wallboard.

D. The following activities are conditionally exempt from this chapter provided no open dump, hazard, or public nuisance is created:

1. Composting of sewage sludge at the sewage treatment plant of generation without addition of other types of solid wastes.

2. Composting of household waste generated at a residence and composted at the site of generation.

3. Composting activities performed for educational purposes as long as no more than 100 cubic yards of materials are on site at any time. Greater quantities will be allowed with suitable justification presented to the department. For quantities greater than 100 cubic yards, approval from the department will be required prior to composting.

4. Composting of animal carcasses onsite at the farm of generation.

5. Composting of vegetative waste and/or yard waste generated onsite by owners or operators of agricultural operations or owners of the real property or those authorized by the owners of the real property provided:

a. All decomposed vegetative waste and compost produced is utilized on said property;

b. No vegetative waste or other waste material generated from other sources other than said property is received;

c. All applicable standards of local ordinances that govern or concern vegetative waste handling, composting, storage or disposal are satisfied; and

d. They pose no nuisance or present no potential threat to human health or the environment.

6. Composting of yard waste by owners or operators who accept yard waste generated offsite shall be exempt from all other provisions of this chapter as applied to the composting activities provided the requirements of 9VAC20-81-397 B are met.

7. Composting of preconsumer food waste and kitchen culls generated onsite and composted in containers designed to prohibit vector attraction and prevent nuisance odor generation.

8. Vermicomposting, when used to process Category I, Category II, or Category III feedstocks in containers designed to prohibit vector attraction and prevent nuisance odor generation. If offsite feedstocks are received no more than 100 cubic yards of materials may be onsite at any one time. For quantities greater than 100 cubic yards, approval from the department will be required prior to composting.

9. Composting of sewage sludge or combinations of sewage sludge with nonhazardous solid waste provided the composting facility is permitted under the requirements of a Virginia Pollution Abatement (VPA) or VPDES permit.

10. Management of solid waste in appropriate containers at the site of its generation, provided that:

a. Putrescible waste is not stored more than seven days between time of collection and time of removal for disposal;

b. Nonputrescible wastes are not stored more than 90 days between time of collection and time of removal for proper management; and

c. Treatment of waste is conducted in accordance with the following:

(1) In accordance with a waste analysis plan that:

(a) Contains a detailed chemical and physical analysis of a representative sample of the waste being treated, and contains all records necessary to treat the waste in accordance with the requirements of this part, including the selected testing frequency; and

(b) Is kept in the facility's onsite file and made available to the department upon request.

(2) Notification is made to the receiving waste management facility that the waste has been treated.

11. Using rocks, brick, block, dirt, broken concrete, crushed glass, porcelain, and road pavement as clean fill.

12. Storage of less than 100 waste tires at the site of generation provided that no waste tires are accepted from offsite and that the storage will not present a hazard or a nuisance.

13. Storage in piles of land-clearing debris including stumps and brush, clean wood wastes, log yard scrapings consisting of a mixture of soil and wood, cotton gin trash, peanut hulls, and similar organic wastes that do not readily decompose, are exempt from this chapter if they meet the following conditions at a minimum:

a. The wastes are managed in the following manner:

(1) They do not cause discharges of leachate, or attract vectors.

(2) They cannot be dispersed by wind and rain.

(3) Fire is prevented.

(4) They do not become putrescent.

b. Any facility storing waste materials under the provisions of this subsection shall obtain a storm water discharge permit if they are considered a significant source under the provisions of 9VAC25-31-120 A 1 c.

c. No more than a total of 1/3 acre of waste material is stored onsite and the waste pile does not exceed 15 feet in height above base grade.

d. Siting provisions.

(1) All log yard scrapings consisting of a mixture of soil and wood, cotton gin trash, peanut hulls, and similar organic wastes that do not readily decompose are stored at the site of the industrial activity that produces them;

(2) A 50-foot fire break is maintained between the waste pile and any structure or tree line;

(3) The slope of the ground within the area of the pile and within 50 feet of the pile does not exceed 4:1;

(4) No waste material may be stored closer than 50 feet to any regularly flowing surface water body or river, floodplain, or wetland; and

(5) No stored waste materials shall extend closer than 50 feet to any property line.

e. If activities at the site cease, any waste stored at the site must be properly managed in accordance with these regulations within 90 days. The director can approve longer time frames with appropriate justification. Justification must be provided in writing no more than 30 days after ceasing activity at the site.

f. Waste piles that do not meet these provisions are required to obtain a permit in accordance with the permitting provisions in Part V (9VAC20-81-400 et seq.) of this chapter and meet all of the applicable waste pile requirements in Part IV (9VAC20-81-300 et seq.) of this chapter. Facilities that do not comply with the provisions of this subsection and fail to obtain a permit are subject to the provisions of 9VAC20-81-40.

14. Storage of nonhazardous solid wastes and hazardous wastes, or hazardous wastes from conditionally exempt small quantity generators as defined in Virginia Hazardous Waste Management Regulations (9VAC20-60) at a transportation terminal or transfer station in closed containers meeting the U.S. Department of Transportation specifications is exempt from this section and the permitting provisions of Part V (9VAC20-81-400 et seq.) of this chapter provided such wastes are removed to a permitted storage or disposal facility within 10 days from the initial receipt from the waste generator. To be eligible for this exemption, each shipment must be properly documented to show the name of the generator, the date of receipt by the transporter, and the date and location of the final destination of the shipment. The documentation shall be kept at the terminal or transfer station for at least three years after the shipment has been completed and shall be made available to the department upon request. All such activities shall comply with any local ordinances.

15. Open burning in accordance with the requirements of 9VAC5-130-40.

16. Open burning of vegetative waste is allowed at a closed landfill that has not been released from postclosure care. The activity shall be included in the text of the postclosure plan and conducted in accordance with § 10.1-1410.3 of the Code of Virginia.

17. Placement of trees, brush, or other vegetation from land used for agricultural or silvicultural purposes on the same property or other property of the same landowner.

18. Using fossil fuel combustion products in one or more of the following applications or when handled, processed, transported, or stockpiled for the following uses:

- a. As a base, sub-base or fill material under a paved road, the footprint of a structure, a paved parking lot, sidewalk, walkway or similar structure, or in the embankment of a road. In the case of roadway embankments, materials will be placed in accordance with VDOT specifications, and exposed slopes not directly under the surface of the pavement must have a minimum of 18 inches of soil cover over the fossil fuel combustion products, the top six inches of which must be capable of sustaining the growth of indigenous plant species or plant species adapted to the area. The use, reuse, or reclamation of unamended coal combustion byproduct shall not be placed in an area designated as a 100-year flood plain;
- b. Processed with a cementitious binder to produce a stabilized structural fill product that is spread and compacted with proper equipment for the construction of a project with a specified end use; or
- c. For the extraction or recovery of materials and compounds contained within the fossil fuel combustion products.

E. The following solid wastes are exempt from this chapter provided that they are managed in accordance with the requirements promulgated by other applicable state or federal agencies:

1. Management of wastes regulated by the State Board of Health, the State Water Control Board, the Air Pollution Control Board, the Department of Mines, Minerals and Energy, Department of Agriculture and Consumer Services, or any other state or federal agency with such authority.
2. Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.
3. Solid waste from the extraction, beneficiation, and processing of ores and minerals, including coal.
4. Fossil fuel combustion products used for mine reclamation, mine subsidence, or mine refuse disposal on a mine site permitted by the Virginia Department of Mines, Minerals and Energy (DMME) when used in accordance with the standards.
5. Solid waste management practices that involve only the onsite placing of solid waste from mineral mining activities at the site of those activities and in compliance with a permit issued by the DMME, that do not include any municipal solid waste, are accomplished in an environmentally sound manner, and do not create an open dump, hazard or public nuisance are exempt from all requirements of this chapter.
6. Waste or byproduct derived from an industrial process that meets the definition of fertilizer, soil amendment, soil conditioner, or horticultural growing medium as defined in § 3.2-3600 of the Code of Virginia, or whose intended purpose is to neutralize soil acidity (see § 3.2-3700 of the Code of Virginia), and that is regulated under the authority of the Virginia Department of Agriculture and Consumer Services.

7. Fossil fuel combustion products bottom ash or boiler slag used as a traction control material or road surface material if the use is consistent with Virginia Department of Transportation practices.

8. Waste tires generated by and stored at salvage yards licensed by the Department of Motor Vehicles provided that such storage complies with requirements set forth in § 10.1-1418.2 and such storage does not pose a hazard or nuisance.

9. Tire chips used as the drainage material in construction of septage drain fields regulated under the authority of the Virginia Department of Health.

F. The following solid wastes are exempt from this chapter provided that they are reclaimed or temporarily stored incidentally to reclamation, are not accumulated speculatively, and are managed without creating an open dump, hazard, or a public nuisance:

1. Paper and paper products;
2. Clean wood waste that is to undergo size reduction in order to produce a saleable product, such as mulch;
3. Cloth;
4. Glass;
5. Plastics;
6. Tire chips, tire shred, ground rubber; and
7. Mixtures of above materials only. Such mixtures may include scrap metals excluded from regulation in accordance with the provisions of subsection C of this section.

9VAC20-81-97. Beneficial use demonstrations.

A. The department may consider other waste materials and uses to be beneficial. The generator or proposed user of such materials may request that the department make a case-specific determination that the solid waste may be beneficially used in a manufacturing process to make a product or as an effective substitute for a commercial product. In all such cases, the materials will be managed so they do not create an open dump, hazard, or public nuisance.

1. The requestor shall provide the following information:
 - a. A description of the solid waste under review and its proposed use;
 - b. Chemical and physical characteristics of the solid waste under review and of each type of proposed product;
 - c. A demonstration that there is a known or reasonably probable market for the intended use of the solid waste under review and of all proposed products by providing one or more of the following:
 - (1) A description of how the proposed product will be used;
 - (2) A demonstration that the proposed product complies with industry standards and specifications for that product if any; or
 - (3) Other documentation that a market for the proposed product or use exists;
 - d. A demonstration that the management of the solid waste under review will not adversely affect human health and safety, the environment, and natural resources by providing:

- (1) A solid waste control plan that describes the following:
 - (a) The source of the solid waste under review;
 - (b) Procedures for periodic testing of the solid waste under review and the proposed product to ensure that the proposed product's composition has not changed significantly;
 - (c) The disposition of any solid waste that may result from the manufacture of the product into which the solid waste under review is intended to be incorporated;
 - (d) A description of the type of storage (e.g., container, tank, or pile) and the maximum anticipated inventory of the solid waste under review (not to exceed 90 days) before being used;
 - (e) Procedures for run-on and run-off control of the storage areas for the solid waste under review; and
 - (f) A program and implementation schedule of best management practices designed to minimize uncontrolled dispersion of the solid waste under review before and during all aspects of its storage as inventory and/or during beneficial use; and
2. Upon receipt of complete information required under subdivision 1 of this subsection, the department will determine in writing within 90 days, on a case-by-case basis, whether the proposal constitutes a beneficial use based on a showing that all of the following criteria have been met:
 - a. The proposed use of the material constitutes a reuse rather than disposal;
 - b. For a material that is proposed for incorporation into a manufacturing process, the material is not required to be decontaminated or otherwise specially handled or processed before such incorporation, in order to minimize loss of material or to provide adequate protection, as needed, of public health, safety, or welfare; the environment; or natural resources; and
 - c. Other criteria as the department shall determine in its discretion to be appropriate. Conversely, the department may determine that owing to the nature of the use, reuse, or reclamation process, some of the informational materials required under subdivision 1 of this subsection may not be required to make the determination.
3. The department will either approve the request, disapprove it, or allow the proposed use of the solid waste under review subject to such conditions as the department may impose. When granting a beneficial use determination, the department shall determine, on a case-by-case basis, the precise point at which the solid waste under review ceases to be solid waste. Unless otherwise determined for the particular solid waste under review, that point occurs when it is used in a manufacturing process to make a product or used as an effective substitute for a commercial product or a fuel. As part of its request, the generator or the proposed user may request that such point occur elsewhere. In such a request, the proponent shall include a demonstration that there is little potential for improper disposal of the material or little potential for the handling, transportation, or storage of the solid waste under review to have an adverse impact upon the public health, safety, or welfare; the environment; or natural resources.
4. The department may revoke any determination made if it finds that one or more of the items of information submitted serving as the basis for the

department's determination was incorrect or is no longer valid, the department finds that there has been a violation of any condition that the department attached to such determination, or that the use, reuse, or reclamation process has become a public nuisance.

B. Beneficial use determinations granted by the department before (insert effective date of Amendment 7) shall remain in effect, subject to all conditions contained therein, unless specifically addressed by subsequent department action.

Part III
Solid Waste Disposal Facility Standards for Sanitary Landfills,
Construction/Demolition/Debris (CDD) Landfills, and Industrial Waste Landfills

9VAC20-81-100. General.

A. Any person who constructs, or operates any solid waste disposal facility, not otherwise exempt under 9VAC20-81-35 D, shall comply with the requirements of this part. Further, all applications for permits pursuant to these standards shall demonstrate specific means proposed for compliance with requirements set forth in this part.

B. All solid waste disposal facilities shall be maintained and operated in accordance with the permit issued pursuant to this regulation, and in accordance with the approved design and intended use of the facility.

C. Hazardous wastes shall not be disposed of or managed in solid waste disposal facilities subject to this regulation unless specifically authorized by the facility permit or the director.

D. A solid waste management facility regulated under Part IV (9VAC20-81-300 et seq.) of this chapter will become subject to the closure and postclosure care standards contained in this part if solid waste will remain after the closure of such a facility.

E. Control program for unauthorized waste.

1. All landfills are required to implement a control program for unauthorized waste in accordance with the provisions of this section. A written description of the program will be placed in the operating record. Additional provisions for sanitary landfills required in subdivision 5 of this subsection are required to be placed in the landfill's operating record. The owner or operator shall institute a control program (including measures such as signs at all maintained access points indicating hours of operation and the types of solid waste accepted and not accepted, monitoring, alternate collection programs, passage of local laws, etc.) to assure that only solid waste authorized by the department to be treated, disposed of, or transferred at the landfill is being treated, disposed of, or transferred at that landfill. The owner or operator must develop and implement a program to teach the landfill's staff to recognize, remove, and report receipt of solid waste not authorized by the department to be treated, disposed of, or transferred at the landfill.

2. If unauthorized waste is observed in the waste delivered to the facility prior to unloading, the owner or operator may refuse to accept the waste. If the owner or operator has accepted the waste, the owner or operator shall remove it, segregate it, and provide to the department a record identifying that waste and its final disposition. Records of each incident shall be available for department review. Any unauthorized waste accepted by the owner or operator shall be managed in accordance with applicable federal or state laws and regulations.

3. Solid waste not authorized by the department to be treated, disposed of, or transferred at the landfill that is segregated shall be adequately secured and contained to prevent leakage or contamination of the environment. The solid waste management facility owner or operator shall have the unauthorized waste removed or properly managed as soon as practicable, but not more than 90 days after discovery. Removal shall be by a person authorized to transport such waste to a waste management facility approved to receive it for treatment, disposal, or transfer.

4. Each noncaptive landfill receiving waste generated outside Virginia shall include provisions in the landfill's unauthorized waste control program for notifying customers outside of Virginia of Virginia's requirements and for preventing the acceptance of prohibited wastes. Each noncaptive landfill shall comply with the same increased random inspection provisions presented for all such landfills in subdivision 5 of this subsection, as applicable.

5. The owner or operator of all landfills (other than captive industrial landfills) shall implement an inspection program to be conducted by landfill personnel to detect and prevent disposal of those wastes prohibited in 9VAC20-81-40 and 9VAC20-81-140. In addition to implementing the requirements of the control program for unauthorized waste in subdivision 4 E of this subsection, the program shall include, at a minimum:

a. The procedures for the routine monitoring and observation of incoming waste at the working face of the landfill;

b. The procedures for random inspections of incoming loads to detect whether incoming loads contain regulated hazardous wastes, PCB wastes, regulated medical waste, or other unauthorized solid waste and ensure that such wastes are not accepted at the landfill. The owner or operator shall inspect a minimum of 1.0% of the incoming loads of waste. In addition, if the facility receives waste generated outside of Virginia and the regulatory structure in that jurisdiction allows for the disposal or incineration of wastes as municipal solid waste that Virginia's laws and regulations prohibit or restrict, the facility shall inspect a minimum of 10% of the incoming loads;

c. Records of all inspections, to include at a minimum time and date of the inspection, the personnel involved, the hauler, the type of waste observed, the identity of the generator of the waste if it can be determined, the location of the facility where the waste was handled prior to being sent to the landfill, and the results of the inspection. All records associated with unauthorized waste monitoring and incidents shall be retained onsite for a minimum of three years and shall be available for inspection by the department;

d. Training of landfill personnel to recognize and manage regulated hazardous waste, PCB wastes, regulated medical waste, and other unauthorized solid wastes;

e. Notification to the department if a regulated hazardous waste, PCB waste, regulated medical waste, or other unauthorized waste is discovered at the landfill. This notification will be made orally as soon as possible, but no later than 24 hours after the occurrence and shall be followed within five working days by a written report that includes a description of the event, the cause of the event, the time and date of the event, and the actions taken to respond to the event; and

f. All regulated medical waste, PCB waste, or other unauthorized solid waste that are detected at a landfill shall be isolated from the incoming waste and properly contained until arrangements can be made for proper transportation for treatment or disposal at an approved facility.

9VAC20-81-110. Applicability.

A. Sanitary landfills. Sanitary landfills may receive only nonhazardous solid waste unless there are other wastes specifically authorized by the landfill permit.

B. Construction/demolition/debris (CDD) landfills. CDD landfills may only receive demolition waste, construction waste, debris waste, land-clearing debris, split tires, and white goods. No other wastes are authorized for the CDD landfill except industrial waste specifically authorized by the landfill permit.

C. Industrial waste disposal facilities. Industrial waste disposal facilities may only receive nonhazardous industrial waste and are subject to design and operational requirements dependent on the volume and the physical, chemical, and biological nature of the waste. No other wastes are authorized for the industrial waste landfill except construction, demolition, and debris waste specifically authorized by the landfill permit.

9VAC20-81-120. Siting requirements.

The siting of all new sanitary, CDD and industrial landfills shall be governed by the standards set forth in this section.

A. Floodplains. No new landfill shall be sited in a 100-year floodplain.

B. Stable areas. New landfills shall be sited in geologically stable areas where adequate foundation support for the structural components of the landfill exists. At a minimum, factors to be considered when determining stable areas shall include:

1. Onsite or local soil conditions that may result in differential settling and subsequent failure of structural components or containment structures; and
2. Onsite or local geological or manmade features or events that may result in sudden or nonsudden events and subsequent failure of structural components or containment structures.

C. Restrictions (distances are to be measured in the horizontal plane).

1. No disposal unit or leachate storage unit shall be closer than:

- a. 200 feet from any residence, school, daycare center, hospital, nursing home, or recreational park area in existence at the time of application;
- b. 100 feet from any perennial stream or river;
- c. 50 feet from the facility boundary;
- d. 500 feet from any well, spring, or other groundwater source of drinking water in existence at the time of application; and
- e. 1,000 feet from the nearest edge of the right-of-way of any interstate or primary highway or 500 feet from the nearest edge of the right-of-way of any other highway or city street, except the following:

(1) Units that are screened by natural objects, plantings, fences, or other means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight;

(2) Units that are located in areas that are zoned for industrial use under authority of state law or in unzoned industrial areas as determined by the Commonwealth Transportation Board; or

(3) Units that are not visible from the main-traveled way of the highway or city street.

2. No new landfill shall be constructed in any park or recreational area, wildlife management area, or area designated by the federal or state agency as the critical habitat of any endangered species.

3. Sanitary landfills.

a. No new sanitary landfill area shall be constructed:

- (1) Within a one mile upgradient of any existing surface or groundwater public water supply intake or reservoir;
- (2) Within three miles upgradient of any existing surface or groundwater public water supply intake or reservoir except as allowed under the provisions of § 10.1-1408.4 B 3 of the Code of Virginia;
- (3) In any area vulnerable to flooding resulting from dam failures;
- (4) Over a sinkhole or less than 100 feet over a solution cavern associated with karst topography; or
- (5) Over a fault that has had displacement in Holocene time.

b. No new sanitary landfill or expansion of an existing sanitary landfill shall be constructed:

- (1) Within 200 feet of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the director that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the facility and will be protective of human health and the environment; or
- (2) Within seismic impact zones, unless the owner or operator demonstrates to the director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

D. Groundwater.

1. No new facility shall be located in areas where groundwater monitoring cannot be conducted in accordance with 9VAC20-81-250 unless this requirement is suspended by the director pursuant to subdivision A 1 c of that section. Factors to be considered in determining whether or not a site can be monitored shall include:

- a. Ability to characterize the direction of groundwater flow within the uppermost aquifer;
- b. Ability to characterize and define any releases from the landfill so as to determine what corrective actions are necessary; and
- c. Ability to perform corrective action as necessary;

E. Wetlands.

1. Sanitary landfills.

- a. New sanitary landfills and expansions of existing landfills, other than those impacting less than 2.0 acres of nontidal wetlands, shall not be constructed in any tidal wetland or nontidal wetland contiguous to any surface water body.
- b. After July 1, 1999, construction at existing permitted facilities, (allowed under the provisions of § 10.1-1408.5) only will be allowed with approvals under the provisions of 9VAC25-210. In addition, the demonstration noted in subdivision 3 of this subsection must be made by the owner or operator to the director.

2. New CDD or industrial landfills and expansions of existing CDD or industrial landfills shall not be located in wetlands, unless the owner or operator can make the demonstration noted in subdivision 3 of this subsection.

3. Demonstration.

a. Where applicable under § 404 of the Clean Water Act or § 62.1-44.15:5 of the Code of Virginia, the presumption is clearly rebutted that a practicable alternative to the proposed landfill exists that does not involve wetlands;

b. The construction and operation of the landfill will not:

(1) Cause or contribute to violations of any applicable water quality standard;

(2) Violate any applicable toxic effluent standard or prohibition under § 307 of the Clean Water Act;

(3) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(4) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

c. The landfill will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the landfill and its ability to protect ecological resources by addressing the following factors:

(1) Erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the landfill;

(2) Erosion, stability, and migration potential of dredged and fill materials used to support the landfill;

(3) The volume and chemical nature of the waste managed in the landfill;

(4) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(5) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(6) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are protected;

d. To the extent required under § 404 of the Clean Water Act or applicable Virginia wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subdivision 3 of this subsection, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of manmade wetlands); and

e. Information is available to enable the department to make a reasonable determination with respect to these demonstrations.

F. Limiting site characteristics.

1. Certain site characteristics may prevent approval or require substantial limitations on the site use or require incorporation of sound engineering controls. Such site characteristics shall be identified and an explanation of precautions necessary to assure compliance with the provisions of this chapter shall be provided. Examples include, but are not limited to:

a. Excessive slopes (greater than 33%);

- b. Lack of readily available cover materials on site, or lack of a firm commitment for adequate cover material from a borrow site;
- c. Springs, seeps, or other groundwater intrusion into the site;
- d. The presence of gas, water, sewage, or electrical or other transmission lines under the site; or
- e. The prior existence on the site of an open dump, unpermitted landfill, lagoon, or similar unit, even if such a unit is closed, will be considered a defect in the site unless the proposed unit can be isolated from the defect by the nature of the unit design and the groundwater for the proposed unit can be effectively monitored.

G. Specific site conditions may be considered in approving an exemption of a site from the following:

- 1. The limiting site characteristics in subsection F of this section for all landfills; and
- 2. The groundwater monitoring in subsection D of this section for CDD and industrial landfills.

H. Acceptable landfill sites shall allow for adequate area and terrain for management of leachate.

I. Airport safety.

- 1. Owners or operators of all sanitary landfills that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft shall demonstrate that the units are designed and operated so that the landfill does not pose a bird hazard to aircraft.
- 2. Owners or operators proposing to site new sanitary landfill and expansions of an existing landfill within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft shall notify the affected airport and the Federal Aviation Administration (FAA). Owners and operators should also be aware that 49 USC § 44718(d), restricts the establishment of landfills within six miles of public airports under certain conditions. Provisions for exemptions from this law also exist.

J. For CDD landfills located in strip mine pits, all coal seams and coal outcrops shall be isolated from solid waste materials by a minimum of five feet of natural or compacted soils with a hydraulic conductivity equal to or less than 1×10^{-7} cm/sec.

9VAC20-81-130. Design and construction requirements.

The design and construction of all sanitary, CDD and industrial landfills shall be governed by the standards set forth in this section.

A. Both the landfill capacity (in cubic yards) and the daily disposal limit shall be specified.

B. All facilities shall be surrounded on all sides by natural barriers, fencing, or an equivalent means of controlling vehicular and public access and preventing illegal disposal. All access will be limited by gates, and such gates shall be securable and equipped with locks, except, in the case of industrial disposal sites where the solid waste disposal landfill is on site of the industrial facility where access is limited.

C. All landfill access roads shall be provided with a base capable of withstanding anticipated heavy vehicle loads and shall be all-weather roads extending from the entrance of the landfill to the working face.

D. All facilities, except captive industrial, shall have an adequately lighted and heated shelter where operating personnel can exercise site control and have access to essential sanitation facilities. Lighting, heat, and sanitation facilities may be provided by portable equipment as necessary.

E. Aesthetics shall be considered in the design of a landfill or site. Use of artificial or natural screens shall be incorporated into the design for site screening and noise attenuation. The design shall reflect those requirements, if any, that are determined from the long-range plan for the future use of the site. Noise attenuation shall be less than 80 dBA at the facility boundary.

F. All landfills shall be equipped with permanent or mobile telephone or radio communications except at industrial landfills where other onsite resources are available.

G. Two survey benchmarks shall be established and maintained on the landfill site, and their location identified or recorded on drawings and maps of the landfill.

H. Surface water runoff. Facilities shall be designed to provide and maintain:

1. A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 24-hour, 25-year storm;

2. A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the landfill unit shall be handled in a manner that will not cause the discharge of:

- a. Pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the Virginia Pollutant Discharge Elimination System (VPDES) requirements; and

- b. A nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an areawide or statewide water quality management plan that has been approved under § 208 or 319 of the Clean Water Act, as amended; and

3. Drainage structures shall be installed and continuously maintained to prevent ponding and erosion, and to minimize infiltration of water into solid waste cells.

I. A fire break of 50 feet shall be designed between the limits of waste and all tree lines.

J. Bottom liner.

1. Sanitary landfills.

All sanitary landfills shall be underlain by a composite liner system as follows:

- a. Subtitle D Liner System.

- (1) Base preparation to protect the liner by preventing liner failure through subsidence or structural failure of the liner system.

- (2) A lower liner consisting of at least a two-foot layer of compacted soil or augmented soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec.

- (3) An upper component consisting of a minimum 30 mil flexible membrane liner (FML). If high density polyethylene (HDPE) is used as an FML, it shall be at least 60 mil thick. The FML component shall be:

- (a) Installed in direct and uniform contact with the compacted soil liner;

(b) Placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans; and

(c) Placed with a minimum of 2.0% slope for leachate drainage.

b. Alternate Liner System. FML/Geosynthetic Clay Liner (GCL).

(1) The alternate liner system presented below is the minimum that is required under these regulations requiring no demonstration. If additional components to this alternate system are incorporated into the liner design, no demonstration will be required.

(2) A controlled subgrade with a minimum thickness of 12 inches shall be provided immediately beneath the alternate liner. The controlled subgrade shall consist of soils having a Unified Soil Classification of SC, ML, CL, MH, or CH and shall be compacted to a minimum of 95% of the maximum dry density, as determined by ASTM D698 (Standard Proctor). The surface shall be rolled smooth and be free of rocks or stones in excess of 0.75 inches prior to placement of the overlying GCL.

The surface shall be prepared to meet the liner manufacturer's and the installer's specifications. The liner manufacturer's/installer's specifications shall consider compaction, soft areas, proof rolling, maximum grain size, rocks, and other subgrade imperfections that may affect the liner. The liner installer shall provide written acceptance of the subgrade before installing liner on it.

(3) A lower liner consisting of geosynthetic clay liner (GCL) with a hydraulic conductivity of no more than 1×10^{-9} cm/sec. The GCL shall have appropriate overlap between adjacent panels so as to minimize the risk of panel shrinkage and/or transverse shortening creating panel separation, and be installed with a minimum 12-inch overlap on the panel ends and 6 inch overlap between adjacent panels. If the liner system will be exposed prior to the placement of a protective cover layer for periods in excess of two months, a discussion of the adequacy of the GCL overlap shall be included in the certification report. Granular bentonite shall be spread on all seams prior to placement of overlapping panels, or other means per manufacturer's specifications.

(4) An upper component consisting of a minimum 30 mil flexible membrane liner (FML). If high density polyethylene (HDPE) is used as an FML, it shall be at least 60 mil thick. The FML component shall be:

(a) Installed in direct and uniform contact with the GCL;

(b) Placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans;

(c) Placed with a minimum of 2.0% slope for leachate drainage; and

(d) Leachate collection aggregate/protective cover materials shall be placed as soon as practical following the completion of the FML installation. At a minimum, this material should be placed within three months of final acceptance of the FML surface by the CQA engineer.

c. Additional alternate liner systems.

(1) Additional alternate liner systems may be approved if the owner or operator of the landfill demonstrates to the satisfaction of the director that the proposed alternate liner system design will ensure that the maximum contaminant levels (MCL) promulgated under §1412 of the Safe Drinking

Water Act (40 CFR Part 141) will not be exceeded in the uppermost aquifer at the disposal unit boundary.

(a) The demonstration shall be based on the consideration of the following factors:

- (1) The hydrogeologic characteristics of the landfill and surrounding land;
- (2) The climatic factors of the area;
- (3) The volume and physical and chemical characteristics of the leachate;
- (4) The quantity, quality, and direction of flow of groundwater;
- (5) The proximity and withdrawal rate of the groundwater users;
- (6) The availability of alternative drinking water supplies;
- (7) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water;
- (8) Public health, safety, and welfare effects; and
- (9) Practicable capability of the owner or operator.

(b) The demonstration shall be supported by the results of a mathematical modeling study based on the EPA MULTIMED model.¹ Other models may be used if accompanied by justification describing the reasons for inapplicability of the MULTIMED model.²

¹ Sharp-Hansen, S., C. Travers, P. Hummel, T. Allison, R. Johns, and W. B. Mills. A Subtitle D Landfill Application Manual for the Multimedia Exposure Assessment Model (MULTIMED 2.0), United States Environmental Protection Agency, Athens, Georgia, 1995.

² For a listing and review of models see Travers, C.L., and S. Sharp-Hansen, Leachate Generation and Migration at Subtitle D Facilities: A Summary and Review of Processes and Mathematical Models, United States Environmental Protection Agency, Environmental Research Laboratory, Athens, Georgia (1991).

2. CDD and industrial landfills.

All landfills shall be underlain by a liner system as follows:

a. Compacted clay:

- (1) A liner consisting of at least one-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec.
- (2) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.
- (3) The liner shall be covered with a minimum one-foot thick drainage layer.

b. Synthetic liners:

- (1) Synthetic liner consisting of a minimum 30 mil thick flexible membrane. If high density polyethylene is used, it shall be at least 60 mil thick. Synthetic liners shall be proven to be compatible with the solid waste and its leachate.
- (2) The liner shall be placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans.
- (3) The surface under the liner shall be a smooth rock-free base or otherwise prepared to prevent liner failure.

(4) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

(5) The liner shall be covered with a 12-inch thick drainage layer for leachate removal and a six-inch thick protective layer placed above the drainage layer, both composed of materials with a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

c. Other liners:

(1) Other augmented compacted clays or soils may be used as a liner provided the thickness is equivalent and the hydraulic conductivity will be equal to or less than that for compacted clay alone.

(2) The effectiveness of the proposed augmented soil liner shall be documented by using laboratory tests.

(3) The liner shall be placed with a minimum of 2.0% slope for leachate drainage.

d. In-place soil:

(1) Where the landfill will be separated from the groundwater by low hydraulic conductivity soil as indicated by laboratory tests, which is natural and undisturbed, and provides equal or better performance in protecting groundwater from leachate contamination, a liner can be developed by manipulation of the soil to form a liner with equivalent thickness and hydraulic conductivity equal to or less than that of the clay liner.

(2) The liner shall be prepared with a minimum of 2.0% slope for leachate drainage. Interior liner slopes of 33% will be allowed provided that adequate runoff and erosion controls are established. All interior slopes shall be supported by necessary calculations and included in the design manual.

e. Double liners required or used in lieu of groundwater monitoring shall include:

(1) Base preparation to protect the liner.

(2) A bottom or secondary liner that is soil, synthetic, or augmented soil as indicated in subdivision 2 a, b, c, or d of this subsection.

(3) A witness or monitoring zone placed above the bottom or secondary liner consisting of a 12-inch thick drainage layer composed of material with a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested) with a network of perforated pipe, or an equivalent design.

(4) The primary liner as indicated in subdivision 2 a, b, or c of this subsection.

(5) The primary liner will be covered with a minimum 12-inch thick drainage layer and a six-inch thick protective layer, placed above the drainage layer, both composed of materials having a hydraulic conductivity of 1×10^{-3} cm/sec or greater (lab tested).

(6) A program for monitoring the witness zone shall be established. The program will monitor the quantity and quality of liquids collected from this zone and shall be designed to detect waste constituents most likely associated with the waste accepted at the landfill. The program will also establish a leakage action rate beyond which groundwater contamination will be assessed through a groundwater monitoring program in accordance with 9VAC20-81-250.

f. If five-foot separation from seasonal high ground water can be demonstrated, a separate area may be established to receive only stumps, brush, leaves, and land-clearing debris. Such an area may be constructed without a liner or a leachate collection system, but may not receive any other solid waste.

K. Each site design shall include a decomposition gas venting system or gas management system (see 9VAC20-81-200), except at CDD and industrial landfills if the owner or operator can demonstrate to the department that gas formation is not a concern.

L. Leachate control and monitoring systems are subject to the requirements in 9VAC20-81-210.

M. A groundwater monitoring system shall be installed at all landfills in accordance with 9VAC20-81-250, except for the exemption of double-lined CDD or industrial landfills referenced in this section.

N. Final contours of the finished landfill shall be specified. Design of final contours shall consider subsequent site uses, existing natural contours, surface water management requirements, and the nature of the surrounding area. The final elevation of the landfill shall be limited by the structural capacity of the liner and leachate collection and removal system and by stability of foundation and slopes. The final contour shall not cause structural damage or collapse of the leachate collection system.

O. Finished side slopes shall be designed as set forth in 9VAC20-81-160 D 3 of this part.

P. All landfills shall be constructed in accordance with approved plans, which shall not be subsequently modified without approval by the department.

Q. Construction quality assurance program.

1. General.

a. A construction quality assurance (CQA) program is required for all landfill units. The program shall ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program shall be developed and implemented under the direction of a CQA officer who is a professional engineer.

b. The CQA program shall address the following physical components, where applicable:

(1) Foundations;

(2) Low-hydraulic conductivity soil liners;

(3) Synthetic membrane liners;

(4) Leachate collection and removal systems including an 18-inch protective layer;

(5) Gas management components; and

(6) Final cover systems.

2. Written CQA plan. The owner or operator shall develop and implement a written CQA plan that shall include observations, inspections, tests, and measurements. The plan shall identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan shall include:

- a. Identification of applicable units, and a description of how they will be constructed;
- b. Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications;
- c. A description of inspection and sampling activities for all unit components identified in subdivision 1 b of this section including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description shall cover sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials and constructed components; plans for implementing corrective measures; and data or other information to be recorded;
- d. Structural stability and integrity of all components of the unit identified in subdivision 1 b of this subsection;
- e. Proper construction of all components of the liners, leachate collection and removal system, gas management system if required under subsection K of this section, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;
- f. Conformity of all materials used with design and other material specifications;
- g. The permeability of the soil liner.

(1) The ability of the soil to be used as a liner material must be demonstrated using a test pad. At least one test pad shall be required for every source of low permeability liner soil. If soil sources are consistent (i.e. similar USCS soil type, liquid and plastic limits, grain size distribution, moisture density relationship, and permeability characteristics) one test pad will be adequate provided that the third-party quality control firm agrees. In the event that soils are not uniform within a borrow source an additional test pad shall be constructed for each soil type.

The test pad shall establish the range of criteria (compaction, moisture content, USCS classification, and grain size) that can be expected to achieve a low permeability soil liner meeting the requirements of the permit. To achieve these results the test pad's permeability shall be correlated with grain size analysis, liquid and plastic limits, moisture content, relative compaction, remolded permeability, undisturbed Shelby tube sample permeability, and the in-situ permeability determined by field tests performed on the test pad.

(2) Following the completion of the test pad the remaining low permeability liner system shall be certified by testing the constructed liner to determine its conformance to the acceptable criteria established during the test pad construction. Such tests shall include compaction, moisture content, grain size, and the liquid and plastic limits of the soil. Any area that does not conform to the established criteria shall be further tested by obtaining an undisturbed Shelby tube sample of the constructed liner and performing a laboratory permeability on it. In addition to testing any liner areas that do not conform to the established test pad acceptance criteria, a minimum of one additional laboratory permeability test shall be performed on each acre of constructed liner.

3. Certification. Once construction is complete, the owner or operator shall submit to the department by certified mail or other equivalent method with a return receipt or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of this section. Documentation supporting the CQA officer's certification shall be submitted to the department upon request. An additional professional engineer's certification is required under the provisions of 9VAC20-81-490 A. Wastes shall not be accepted until the facility receives a Certificate to Operate (CTO) per 9VAC20-81-490 A.

9VAC20-81-140. Operation requirements.

The operation of all sanitary, CDD, and industrial landfills shall be governed by the standards set forth in this section. Landfill operations will be detailed in an operations manual that shall be maintained in the operating record in accordance with 9VAC20-81-485. This operations manual will include an operations plan, an inspection plan, a health and safety plan, an unauthorized waste control plan, an emergency contingency plan, and a landscaping plan meeting the requirements of this section and 9VAC20-81-485. This manual shall be made available to the department when requested. If the applicable standards of this chapter and the landfill's Operations Manual conflict, this chapter shall take precedence.

A. Landfill operational performance standards.

1. Safety hazards to operating personnel shall be controlled through an active safety program consistent with the requirements of 29 CFR Part 1910, as amended.
2. A groundwater monitoring program meeting the requirements of 9VAC20-81-250 shall be implemented, as applicable.
3. A corrective action program meeting the requirements of 9VAC20-81-260 is required whenever the groundwater protection standard is exceeded at statistically significant levels.
4. Open burning at active landfills.
 - a. Owners or operators shall ensure that the units do not violate any applicable requirements developed by the State Air Pollution Control Board or promulgated by the EPA administrator pursuant to § 110 of the Clean Air Act, as amended (42 USC §§ 7401 to 7671q).
 - b. Open burning of solid waste, except for infrequent burning of agricultural wastes, silvicultural wastes, land-clearing debris, diseased trees, or debris from emergency cleanup operations is prohibited. There shall be no open burning permitted on areas where solid waste has been disposed of or is being used for active disposal.
 - c. The owner or operator shall be responsible for extinguishing any fires that may occur at the facility. A fire control plan will be developed that outlines the response of facility personnel to fires. The fire control plan will be provided as an attachment to the emergency contingency plan required under the provisions of 9VAC20-81-485. The fire control plan will be available for review upon request by the public. There shall be no open burning permitted on areas where solid waste has been disposed or is being used for active disposal.

5. Except as provided in 9VAC20-81-130 K, owners or operators shall implement a gas management plan in accordance with 9VAC20-81-200 to control landfill gas such that :

- a. The concentration of methane gas generated by the landfill does not exceed 25% of the lower explosive limit for methane in landfill structures (excluding gas control or recovery system components); and
- b. The concentration of methane gas does not exceed the lower explosive limit for methane at the facility boundary.

6. Landfills shall not:

- a. Allow leachate from the landfill to drain or discharge into surface waters except when treated onsite and discharged into surface water as authorized under a VPDES Permit (9VAC25-31).
- b. Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act (33 USC § 1251 et seq.), including, but not limited to, the VPDES requirements and Virginia Water Quality Standards (9VAC25-260).
- c. Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an areawide or statewide water quality management plan that has been approved under § 208 or 319 of the Clean Water Act (33 USC § 1251 et seq.), as amended or violates any requirement of the Virginia Water Quality Standards (9VAC25-260).
- d. Allow solid waste to be deposited in or to enter any surface waters or groundwaters.

7. Owners or operators shall maintain the run-on/runoff control systems designed and constructed in accordance with 9VAC20-81-130 H.

8. Access to sanitary, CDD, or noncaptive industrial landfills shall be permitted only when an attendant is on duty and only during daylight hours, unless otherwise specified in the landfill permit.

9. Fencing or other suitable control means shall be used to control litter migration. All litter blown from the landfill operations shall be collected on a weekly basis.

10. Odors and vectors shall be effectively controlled so they do not constitute nuisances or hazards. Odor hazard or nuisances shall be controlled in accordance with 9VAC20-81-200 D. Disease vectors shall be controlled using techniques for the protection of human health and the environment.

11. If salvaging is allowed by a landfill, it shall not interfere with operation of the landfill and shall not create hazards or nuisances.

12. Fugitive dust and mud deposits on main offsite roads and access roads shall be minimized at all times to limit nuisances. Dust shall be controlled to meet the requirements of Article 1 (9VAC5-40-60 et seq.) of Part II of 9VAC5-40.

13. Internal roads in the landfill shall be maintained to be passable in all weather by ordinary vehicles. All operation areas and units shall be accessible.

14. All landfill appurtenances listed in 9VAC20-81-130 shall be properly maintained and operated as designed and approved in the facility's permit.

15. Adequate numbers and types of properly maintained equipment shall be available to a landfill for operation. Provision shall be made for substitute

equipment to be available or alternate means implemented to achieve compliance with subdivision B 1, C 1, or D 1 of this section, as applicable, within 24 hours should the former become inoperable or unavailable. Operators with training appropriate to the tasks they are expected to perform and in sufficient numbers for the complexity of the site shall be on the site whenever it is in operation.

16. Self-Inspection. Each landfill shall implement an inspection routine including a schedule for inspecting all applicable major aspects of facility operations necessary to ensure compliance with the requirements of this chapter. Records of these inspections must be maintained in the operating record and available for review. At a minimum, the following aspects of the facility shall be inspected on a monthly basis: erosion and sediment controls, storm water conveyance system, leachate collection system, safety and emergency equipment, internal roads, and operating equipment. The groundwater monitoring system, and gas management system shall be inspected at a rate consistent with the system's monitoring frequency.

17. Records to include, at a minimum, date of receipt, quantity by weight or volume, and origin shall be maintained on solid waste received and processed to fulfill the applicable requirements of the Solid Waste Information and Assessment Program under 9VAC20-81-80 and the Control Program for Unauthorized Waste under 9VAC20-81-100 E. Such records shall be made available to the department for examination or use when requested.

B. In addition to the standards in subsection A of this section, sanitary landfills shall also comply with the following:

1. Compaction and cover requirements.

a. Unless provided otherwise in the permit, solid waste shall be spread into two-foot layers or less and compacted at the working face, which shall be confined to the smallest area practicable.

b. Lift heights shall be sized in accordance with daily waste volumes. Lift height is not recommended to exceed 10 feet.

c. Daily cover consisting of six inches of compacted soil or other approved material shall be placed upon and maintained on all exposed solid waste prior to the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. Alternate materials of an alternate thickness may be approved by the department if it has been demonstrated that the alternate material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. At least three days of acceptable cover soil or approved material at the average usage rate shall be maintained at the landfill or readily available at all times.

d. Intermediate cover of at least six inches of additional compacted soil shall be applied and maintained whenever an additional lift of refuse is not to be applied within 30 days. Further, all areas with intermediate cover exposed shall be inspected as needed, but not less than weekly. Additional cover material shall be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.

e. Final cover construction will be initiated and maintained in accordance with the requirements of 9VAC20-81-160 D 2 when the following pertain:

- (1) An additional lift of solid waste is not to be applied within one year, or a longer period as required by the facility's phased development.
 - (2) Any area of a landfill attains final elevation and within 90 days after such elevation is reached or longer if specified in the landfill's approved closure plan.
 - (3) An entire landfill's permit is terminated for any reason, and within 90 days of such denial or termination.
- f. Vegetation shall be established and maintained on all exposed final cover material within four months after placement, or as specified by the department when seasonal conditions do not permit. Mowing will be conducted a minimum of once a year or at a frequency suitable for the vegetation and climate.
- g. Areas where waste has been disposed that have not received waste within 30 days will not have slopes exceeding the final cover slopes specified in the permit or 33% unless steeper slopes are approved in the permit.
2. The active working face of a sanitary landfill shall be kept as small as practicable, determined by the tipping demand for unloading.
3. A sanitary landfill that is located within 10,000 feet of any airport runway used for turbojet aircraft or 5,000 feet of any airport runway used by only piston type aircraft, shall operate in such a manner that the landfill does not increase or pose additional bird hazards to aircraft.
4. Sanitary landfills shall not dispose of the following wastes, except as specifically authorized by the landfill permit or by the department:
 - a. Free liquids.
 - (1) Bulk or noncontainerized liquid waste, unless:
 - (a) The waste is household waste; or
 - (b) The waste is gas condensate derived from that landfill;
 - (c) The waste is leachate derived from that landfill and the landfill is designed with a composite liner and leachate collection system as described in 9VAC20-81-130 J 1 a and 9VAC20-81-130 L; or
 - (2) Containers holding liquid waste, unless:
 - (a) The container is a small container similar in size to that normally found in household waste;
 - (b) The container is designed to hold liquids for use other than storage; or
 - (c) The waste is household waste.
 - b. Regulated hazardous wastes as defined by the Virginia Hazardous Waste Management Regulations (9VAC20-60).
 - c. Solid wastes, residues, or soils containing more than 1.0 ppb (parts per billion) TEF (dioxins).
 - d. Solid wastes, residues, or soils containing 50.0 ppm (parts per million) or more of PCB's except as allowed under the provisions of 9VAC20-81-630.
 - e. Sludges that have not been dewatered.
 - f. Contaminated soil unless approved by the department in accordance with the requirements of 9VAC20-81-610 or 9VAC20-81-660.
 - g. Regulated medical waste as specified in the Regulated Medical Waste Management Regulations (9VAC20-120).

5. Chloroflourocarbons, hydrochlorofluorocarbons, and PCBs must be removed from white goods prior to placement on the working face.

C. In addition to the standards in subsection A of this section, Construction/demolition/debris landfills shall also comply with the following:

1. Compaction and cover requirements.

a. Waste materials shall be compacted in shallow layers during the placement of disposal lifts to minimize differential settlement.

b. Compacted soil cover shall be applied as needed for safety and aesthetic purposes. A minimum one-foot thick progressive cover shall be maintained weekly such that the top of the lift is fully covered at the end of the work week. If the landfill accepts Category I or II nonfriable asbestos containing material for disposal, daily soil cover shall be placed upon all exposed Category I or II nonfriable asbestos containing material prior to the end of each operating day. The open working face of a landfill shall be kept as small as practicable, determined by the tipping demand for unloading.

c. When waste deposits have reached final elevations, or disposal activities are interrupted for 15 days or more, waste deposits shall receive a one-foot thick intermediate cover unless soil has already been applied in accordance with subdivision 1 b of this subsection and be graded to prevent ponding and to accelerate surface run-off.

d. Final cover construction will be initiated and maintained in accordance with the requirements of 9VAC20-81-160 D 2 when the following pertain:

(1) An additional lift of solid waste is not to be applied within one year, or a longer period as required by the facility's phased development.

(2) Any area of a landfill attains final elevation and within 90 days after such elevation is reached or longer if specified in the landfill's approved closure plan.

(3) An entire landfill's permit is terminated for any reason, and within 90 days of such denial or termination.

e. Vegetation shall be established and maintained on all exposed final cover material within four months after placement, or as specified by the department when seasonal conditions do not permit. Mowing will be conducted a minimum of once a year or at a frequency suitable for the vegetation and climate.

f. Areas where waste has been disposed that have not received waste within 30 days will not have slopes exceeding the final cover slopes specified in the permit or 33%.

2. Chloroflourocarbons, hydrochlorofluorocarbons, and PCBs must be removed from white goods prior to placement on the working face.

D. In addition to the standards in subsection A of this section, Industrial Landfills shall also comply with the following:

1. Compaction and cover requirements.

a. Unless provided otherwise in the permit, solid waste shall be spread and compacted at the working face, which shall be confined to the smallest area practicable.

- b. Lift heights shall be sized according to the volume of waste received daily and the nature of the industrial waste. A lift height is not required for materials such as fly ash that are not compactable.
 - c. Where it is necessary for the specific waste, such as Category I or II nonfriable asbestos containing material, daily soil cover, or other suitable material shall be placed upon all exposed solid waste prior to the end of each operating day. For wastes such as fly ash and bottom ash from burning of fossil fuels, periodic cover to minimize exposure to precipitation and control dust or dust control measures such as surface wetting or crusting agents shall be applied. At least three days of acceptable cover soil or approved material at the average usage rate shall be maintained at the fill at all times at facilities where daily cover is required unless an offsite supply is readily available on a daily basis.
 - d. Intermediate cover of at least one foot of compacted soil shall be applied whenever an additional lift of refuse is not to be applied within 30 days unless the owner or operator demonstrates to the satisfaction of the director that an alternate cover material or an alternate schedule will be protective of public health and the environment. In the case of facilities where fossil fuel combustion products are removed for beneficial use, intermediate cover must be applied in any area where ash has not been placed or removed for 30 days or more. Further, all areas with intermediate cover exposed shall be inspected as needed but not less than weekly and additional cover material shall be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.
 - e. Final cover construction will be initiated in accordance with the requirements of 9VAC20-81-160 D 2 when the following pertain:
 - (1) When an additional lift of solid waste is not to be applied within two years or a longer period as required by the facility's phased development.
 - (2) When any area of a landfill attains final elevation and within 90 days after such elevation is reached or longer if specified in the landfill's approved closure plan.
 - (3) When a landfill's permit is terminated within 90 days of such denial or termination.
 - f. Vegetation shall be established and maintained on all exposed final cover material within four months after placement, or as otherwise specified by the department when seasonal conditions do not otherwise permit. Mowing will be conducted a minimum of once a year or at a frequency suitable for the vegetation and climate.
2. Incinerator and air pollution control residues containing no free liquids shall be incorporated into the working face and covered at such intervals as necessary to minimize them from becoming airborne.

9VAC20-81-160. Closure requirements.

The closure of all sanitary, CDD and industrial landfills shall be governed by the standards set forth in this section.

A. Closure purpose. The owner or operator shall close the landfill in a manner that minimizes the need for further maintenance and provides for the protection of human health and the environment. Closure shall eliminate the postclosure escape of

uncontrolled leachate or of waste decomposition products to the groundwater or surface water to the extent necessary to protect human health and the environment. Closure shall also control and/or minimize surface runoff and the escape of waste decomposition products to the atmosphere.

B. Closure plan and modification of plan.

1. The owner or operator of a solid waste disposal facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the landfill at the time when the operation will be the most extensive and at the end of its intended life. The closure plan shall include, at least:

- a. A schedule for final closure that shall include, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates that will allow tracking of the progress of closure.
- b. An estimate of waste disposed onsite over the active life of the landfill;
- c. An estimate of the largest area ever requiring a final cover as required at any time during the active life;
- d. Description of Final Cover System design in accordance with subsection D of this section;
- e. Description of storm water management to include design, construction, and maintenance controls;
- f. Closure cost estimate for purpose of financial assurance.

2. The owner or operator may amend the closure plan at any time during the active life of the landfill. The owner or operator shall so amend his plan any time changes in operating plans or landfill design affect the closure plan. The amended closure plan shall be placed in the operating record and a copy provided to the department.

3. Closure plans and amended closure plans not previously approved by the director shall be submitted to the department at least 180 days before the date the owner or operator expects to begin construction activities related to closure. The director will approve or disapprove the plan within 90 days of receipt.

4. If the owner or operator intends to use an alternate final cover design, he shall submit a proposed design meeting the requirements of subdivision D 2 e of this section to the department at least 180 days before the date he expects to begin closure. The department will approve or disapprove the plan within 90 days of receipt.

5. At least 180 days prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department and the solid waste planning unit of the intent to close.

C. Time allowed for closure.

1. The owner or operator shall begin closure activities of each unit no later than 30 days after the date on which the unit receives the known final receipt of wastes or, if the unit has remaining capacity and there is a reasonable likelihood that the unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the director if the owner or operator demonstrates that the unit has the capacity to receive additional wastes and the owner or operator

has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed unit.

2. The owner or operator shall complete closure activities of each unit in accordance with the closure plan and within six months after receiving the final volume of wastes. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that he has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive landfill.

D. Closure implementation.

1. The owner or operator shall close each unit with a final cover as specified in subdivision 2 of this subsection, grade the fill area to prevent ponding, and provide a suitable vegetative cover. Vegetation shall be deemed properly established when there are no large areas void of vegetation and it is sufficient to control erosion.

2. Final cover system.

a. The owner or operator shall install a final cover system that is designed to achieve the performance requirements of this section.

b. Owners or operators of CDD landfill units used for the disposal of wastes consisting only of stumps, wood, brush, and leaves from landclearing operations may apply two feet of compacted soil as final cover material in lieu of the final cover system specified in this section. The provisions of this section shall not be applicable to any landfill with respect to which the director has made a finding that continued operation of the landfill constitutes a threat to the public health or the environment.

c. The final cover system shall be designed and constructed to:

(1) Minimize infiltration through the closed disposal unit by the use of an infiltration layer that is constructed of at least 18 inches of earthen material; and which has a hydraulic conductivity less than or equal to the hydraulic conductivity of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than 1×10^{-5} cm/sec, whichever is less; and

(2) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth, and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.

d. The owner or operator of a sanitary landfill may choose to use this alternate final cover system, which shall consist of at least the following components:

(1) An 18-inch soil infiltration layer with a hydraulic conductivity no greater than 1×10^{-5} cm/sec or a geosynthetic clay liner installed over the intermediate cover;

(2) A barrier layer consisting of a geosynthetic membrane having a minimum thickness of 40-mils;

(3) A protective cover layer for protection of the infiltration layer from the effects of erosion, frost, and wind, and consisting of a minimum of 18 inches of soil; and

- (4) A vegetative support layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
 - e. The owner or operator of a CDD or industrial landfill may choose to use this alternate final cover system, which shall consist of at least the following components:
 - (1) A barrier layer consisting of a geosynthetic clay liner or a geosynthetic membrane having a minimum thickness of 40 mils;
 - (2) A protective cover layer for protection of the infiltration layer from the effects of erosion, frost, and wind, and consisting of a minimum of 18 inches of soil; and
 - (3) A vegetative support layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
 - f. The director may approve an alternate final cover design that includes:
 - (1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in subdivision 2 c (1) of this subsection; and
 - (2) A minimum 24-inch erosion layer that is capable of sustaining native plant growth and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.
3. Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. To prevent ponding of water, the top slope shall be at least 2.0% after allowance for settlement.
4. Following construction of the final cover system for each unit, the owner or operator shall submit to the department a certification, signed by a professional engineer verifying that closure has been completed in accordance with the closure plan requirements of this part. This certification shall include the results of the CQA/QC requirements under 9VAC20-81-130 Q 1 b (6).
5. Following the closure of all units the owner or operator shall:
 - a. Post one sign at the entrance of the landfill notifying all persons of the closing, and the prohibition against further receipt of waste materials. Further, suitable barriers shall be installed at former accesses to prevent new waste from being deposited.
 - b. Within 90 days after closure is completed, submit to the local land recording authority a survey plat prepared by a professional land surveyor registered by the Commonwealth or a person qualified in accordance with Title 54.1 of the Code of Virginia indicating the location and dimensions of landfills. Groundwater monitoring well and landfill gas monitoring probe locations shall be included and identified by the number on the survey plat. The plat filed with the local land recording authority shall contain a note, prominently displayed, which states the owner's or operator's future obligation to restrict disturbance of the site as specified.
 - c. Record a notation on the deed to the landfill property, or on some other instrument which is normally examined during title searches, notifying any potential purchaser of the property that the land has been used to manage

solid waste and its use is restricted under 9VAC20-81-170 A 2 c. A copy of the deed notation as recorded shall be submitted to the department.

d. Submit to the department a certification, signed by a professional engineer, verifying that closure has been completed in accordance with the requirements of subdivisions 5 a, b, and c of this subsection and the landfill closure plan.

6. The department shall inspect all solid waste management facilities at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner or operator of a closed landfill, in writing, if the closure is satisfactory, and shall require any construction or such other steps necessary to bring unsatisfactory sites into compliance with these regulations. Notification by the department that the closure is satisfactory does not relieve the owner or operator of responsibility for corrective action to prevent or abate problems caused by the landfill.

9VAC20-81-170. Postclosure care requirements.

The postclosure of all sanitary, CDD, and industrial landfills shall be governed by the standards as set forth in this section.

A. Postclosure care requirements.

1. Following closure of the landfill, the owner or operator shall conduct postclosure care of the landfill. Postclosure care shall consist of at least the following:

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system, as applicable, in accordance with the requirements in 9VAC20-81-210. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Maintaining the groundwater monitoring system and monitoring the groundwater, as applicable, in accordance with the requirements in 9VAC20-81-250; and

d. Maintaining and operating the gas monitoring system, as applicable, in accordance with the requirements in 9VAC20-81-200.

2. The owner or operator shall prepare a written postclosure plan or review and revise the approved postclosure plan to insure that it includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subdivision 1 of this subsection for the landfill, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the landfill during the postclosure period; and

c. A description of the planned uses of the property during the postclosure period. Postclosure use of the property shall not disturb the integrity of the final cover, liners, or any other components of the containment system, or the

function of the monitoring systems unless necessary to comply with the requirements of this chapter. The director may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

3. The owner or operator shall submit a postclosure care plan for review and approval by the department whenever a postclosure care plan has been prepared or amended. Those postclosure care plans that have been placed in a landfill's operating record must be reviewed and approved by the director prior to implementation.

B. Postclosure period.

1. Unless a landfill completes all provisions of 9VAC20-81-160 D, the department will not consider the landfill closed, and the beginning of the postclosure care period will be postponed until all provisions have been completed. The postclosure care period begins on the date of the certification signed by a professional engineer as required in 9VAC20-81-160 D 5 d.

2. The postclosure care shall be conducted:

- a. For a minimum of 10 years for sanitary landfill facilities that ceased to accept wastes before October 9, 1993;
- b. For a minimum of 30 years for sanitary landfill facilities that received wastes on or after October 9, 1993;
- c. For a minimum of 10 years for CDD and industrial landfill facilities; or
- d. As provided in subdivision 3 of this subsection.

3. The length of the postclosure care period may be decreased if the owner or operator demonstrates that the reduced period is equally protective of human health and the environment, the owner or operator submits a justifying demonstration, and the department approves this demonstration. The owner or operator shall submit this demonstration to the department for review and approval, and shall also include the following information:

- a. A certification, signed by the owner or operator and a professional engineer, verifying that decreasing the postclosure care period will be equally protective of human health and the environment.
- b. The certificate shall be accompanied by an evaluation, prepared by a professional engineer, assessing and evaluating the landfill's potential for increased risk to human health and the environment in the event that postclosure period is decreased.

4. The owner or operator will continue postclosure care and monitoring until such time that the department approves termination of the postclosure care and/or monitoring activity.

C. Postclosure care termination.

1. The owner or operator may submit a request for termination of any or all portions of postclosure care and monitoring following completion of the postclosure care period (as defined in subdivision B 2 of this section) for the landfill. The owner or operator shall demonstrate that termination of postclosure care and/or monitoring activity/activities shall be protective of human health and the environment. The owner or operator shall submit this demonstration for

termination to the department for review and approval, and shall also include the following information:

- a. A certification, signed by the owner or operator and a professional engineer, verifying that postclosure care has been completed in accordance with the postclosure plan.
- b. The certificate shall be accompanied by an evaluation, prepared by a professional engineer or professional geologist, assessing and evaluating the landfill's potential for increased risk to human health and the environment in the event that postclosure monitoring and maintenance are discontinued.

2. If the department does not approve termination of the postclosure care and/or monitoring, the owner or operator shall continue postclosure monitoring and maintenance in accordance with the approved plan. Additionally, the owner or operator shall review and revise, as necessary, the postclosure plan for modifications necessary to meet the current regulatory requirements, and submit this revised plan to the department for review and approval.

D. Owner or operator postclosure plan review.

1. The owner or operator shall review and revise, as necessary, the postclosure care plan for modifications to meet the current regulatory requirements and reflect the current landfill conditions when:

- a. The department does not approve the termination of all postclosure care monitoring and maintenance activities; or
- b. The minimum postclosure period has been met, and there is ongoing corrective action measures per 9VAC20-81-260 for the landfill.

2. The owner or operator shall submit this revised plan to the department for review and approval, and shall continue postclosure monitoring and maintenance in accordance with the approved plan.

9VAC20-81-200. Control of decomposition gases.

Owners or operators of solid waste disposal facilities shall develop a gas management plan in accordance with this section. Venting and control of decomposition gases shall be implemented for sanitary and other landfills in order to protect the landfill cap and prevent migration into structures or beyond the facility boundary, subject to exceptions at 9VAC20-81-130 K. The contents of the plan shall also reflect the requirements contained in 40 CFR 60.33c and 40 CFR 60.750, (Standards of performance for new and guidelines for control of existing municipal solid waste landfills) and 9VAC5-40-5800, as applicable.

A. General requirements.

1. To provide for the protection of public health and safety, and the environment, the operator shall ensure that decomposition gases generated at a landfill are controlled during the periods of operation, closure and postclosure care, in accordance with the following requirements:

- a. The concentration of methane gas generated by the landfill shall not exceed 25% of the lower explosive limit (LEL) for methane in landfill structures (excluding gas control or recovery system components); and
- b. The concentration of methane gas migrating from the landfill shall not exceed the lower explosive limit for methane at the facility boundary.

2. The program implemented pursuant to subsections B through E of this section shall continue throughout the active life of the landfill and the closure and postclosure care periods or until the operator receives written authorization by the department to discontinue. Authorization to cease gas monitoring and control shall be based on a demonstration by the operator that there is no potential for gas migration beyond the facility boundary or into landfill structures.

3. Gas monitoring and control systems shall be modified, during the closure and postclosure maintenance period, to reflect changing on-site and adjacent land uses. Postclosure land use at the site shall not interfere with the function of gas monitoring and control systems.

4. The operator may request a reduction of monitoring or control activities based upon the results of collected monitoring data. The request for reduction of monitoring or control activities shall be submitted in writing to the department.

B. The operator shall implement a gas monitoring program at the landfill in accordance with the following requirements:

1. The gas monitoring network shall be designed to ensure detection of the presence of decomposition gas migrating beyond the landfill facility boundary and into landfill structures.

2. The monitoring network shall be designed to account for the following specific site characteristics, and potential migration pathways or barriers, including, but not limited to:

- a. Local soil and rock conditions;
- b. Hydrogeological and hydraulic conditions surrounding the landfill;
- c. Locations of buildings and structures relative to the waste deposit area;
- d. Adjacent land use, and inhabitable structures within 1,000 feet of the landfill facility boundary;
- e. Manmade pathways, such as underground construction; and
- f. The nature and age of waste and its potential to generate decomposition gas.

3. Owners or operators of certain large sanitary landfills and landfills located in nonattainment areas may be required to perform additional monitoring as provided in 40 CFR 60.33c, 40 CFR 60.750, and 9VAC5-40-5800.

4. At a minimum, the gas monitoring frequency shall be quarterly. The department may require more frequent monitoring at locations where monitoring results indicate gas migration or gas accumulation in devices or structures designed to detect migrating gas.

C. Gas Remediation.

1. When the gas monitoring results indicate concentrations of methane in excess of the action levels, 25% of the lower explosive limit (LEL) for methane in landfill structures (excluding gas control or recovery system components) or 80% of the LEL for methane at the facility boundary, the operator shall:

- a. Take all immediate steps necessary to protect public health and safety including those required by the contingency plan.
- b. Notify the department in writing within five working days of learning that action levels have been exceeded, and indicate what has been done or is planned to be done to resolve the problem.

2. When the gas monitoring results indicate concentrations of methane in excess of the compliance levels, 25% of the LEL for methane in landfill structures (excluding gas control or recovery system components) or the LEL for methane at the facility boundary, the operator shall, within 60 days of detection, implement a remediation plan for the methane gas releases and submit it to the department for modification of the landfill permit. The plan shall describe the nature and extent of the problem and the proposed remedy. The plan shall include an implementation schedule specifying timeframes for implementing corrective actions, an evaluation of the effectiveness of such corrective actions, and milestones for proceeding in implementation of additional corrective actions, if necessary to reestablish compliance.

3. A gas remediation system shall:

- a. Prevent methane accumulation in onsite structures.
- b. Reduce methane concentrations at monitored facility boundaries to below compliance levels in the timeframes specified in the gas remediation plan.
- c. Provide for the collection and treatment and/or disposal of decomposition gas condensate produced at the surface. Condensate generated from gas control systems may be recirculated into the landfill provided the landfill complies with the liner and leachate control systems requirements of this part. Condensate collected in condensate traps and drained by gravity into the waste mass will not be considered recirculation.

4. Extensive systems to control emissions of nonmethane organic compounds may be required under the Clean Air Act (40 CFR 60.33c and 40 CFR 60.750) and 9VAC5-40-5800. Facilities that are required to construct and operate systems designed to comply with those regulations will be considered to be in compliance with the requirements of subdivisions C 3 a and b of this subsection, unless monitoring data continues to indicate an exceedance of compliance levels. Gas control systems also may be subject to the Virginia Permits for Stationary Sources Program 9VAC5-80 or other state air pollution control regulations.

5. The landfill shall notify the department of an exceedance of the compliance level or unusual condition that may endanger human health and the environment in accordance with 9VAC20-81-530 C 3, such as when an active gas remediation system is no longer operating in such a manner as to maintain compliance with this section.

D. Odor management.

1. When an odor nuisance or hazard is created under normal operating conditions and upon notification from the department, the permittee shall, within 90 days, develop and implement an odor management plan to address odors that may impact citizens beyond the facility boundaries. The permittee shall place the plan in the operating record and a copy shall be submitted to the department for its records. Odor management plans developed in accordance with Virginia Air Regulations, 9VAC5-40-140, 9VAC5-50-140 or other state air pollution control regulations will suffice for the provisions of this subsection.

2. The plan shall identify a contact at the landfill that citizens can notify about odor concerns.

3. Facilities shall perform and document an annual review and update the odor management plan, as necessary, to address ongoing odor management issues.

E. Recordkeeping. The owner or operator shall keep the records of the results of gas monitoring and any gas remediation issues throughout the active life of the landfill and the postclosure care period. The records shall include:

1. The concentrations of the methane as measured at each probe and within each onsite structure;
2. The documentation of date, time, barometric pressure, atmospheric temperatures, general weather conditions, and probe pressures;
3. The names of sampling personnel, apparatus utilized, and a brief description of the methods used;
4. A numbering system to correlate monitoring results to a corresponding probe location; and
5. Monitoring and design records for any gas remediation or control system.

9VAC20-81-210. Leachate control.

A. Design plan. The design plan shall provide for leachate management. This design plan shall include the following:

1. An estimate of the quality and quantity of leachate to be produced annually by the facility. The estimate shall include the 30-day leachate volume and average flow rate of each month of the year. A separate estimate shall be submitted for anticipated leachate generation at the end of five year increments of operation for 20 years, or until closure, whichever date is earlier. For existing facilities, current leachate generation shall be included with this separate estimate.
2. The leachate collection system shall be designed and constructed to maintain less than a 30 cm depth of leachate over the liner, excluding manifold trenches and sumps.
3. Plans, designs, and cross sections for the proposed collection and handling system.
4. Plans, designs, and cross sections for onsite leachate storage or treatment systems, including system appurtenances for storage, pretreatment, or treatment of leachate from the facility.

B. Tanks and surface impoundments used for storage of leachate shall have a flow equalization and surge capacity at least equal to the maximum expected production of leachate for any seven-day period for the life of the facility estimated under subdivision A 1 of this section. Leachate storage capacity may not be considered to include leachate that may have collected in or on the liner system. Storage tanks and impoundments shall be aerated, as necessary, to prevent and control odors.

C. Surface impoundments used for storage of leachate shall be equipped with a liner system that shall provide equal or greater protection of human health and the environment than that provided by the liner of the landfill producing the leachate.

D. The collected leachate shall be:

1. Discharged directly or after pretreatment into a line leading to the publicly owned treatment works or other permitted wastewater treatment facility;
2. Transported by a vehicle to an offsite permitted wastewater treatment facility;
3. Recirculated within the landfill, provided that the irrigated area is underlain by a composite liner, or other liner system approved by EPA or Research,

- Development, and Demonstration plan for recirculation, and that the operation causes no runoff, ponding or nuisance odors;
4. Treated onsite and discharged into surface water when authorized under VPDES permit; or
 5. Other methods of treatment or disposal as approved by the department.
- E. The collected leachate shall not be discharged to an underground drain field.
- F. Leachate seeps. If a leachate seep(s) occurs, the owner or operator shall repair the seep(s) and do the following:
1. Take all immediate steps necessary to protect public health and safety including those required by the contingency plan.
 2. Take immediate action to minimize, control, or eliminate the seep, and to contain and properly manage the leachate at the source of the seep.
 3. Any leachate released outside the lined area permitted for waste disposal shall be properly collected and disposed.

9VAC20-81-250. Groundwater monitoring program.

A. General requirements.

1. Applicability.

a. Existing landfills. Owners or operators of all existing landfills shall be in compliance with the groundwater monitoring requirements specified in this section, except as provided for in subdivision 1 c of this subsection. Owners or operators of landfills that were permitted prior to December 21, 1988, but were closed in accordance with the requirements of their permit or existing regulation prior to December 21, 1988, are not required to be in compliance with the groundwater monitoring requirements specified in this section, unless conditions are recognized that classify the landfill as an Open Dump as defined under 9VAC20-81-45.

b. New landfills. Owners or operators of new facilities shall be in compliance with the groundwater monitoring requirements specified in this section before waste can be placed in the landfill except as provided for in subdivision 1 c of this subsection.

c. No migration potential exemption. Groundwater monitoring requirements under this section may be suspended by the director if the owner or operator can demonstrate that there is no potential for migration of any Table 3.1 constituents to the uppermost aquifer during the active life and the postclosure care period of the landfill. This demonstration shall be certified by a qualified groundwater scientist and shall be based upon:

(1) Site-specific field collected measurements including sampling and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and

(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and the environment.

2. General requirements.

a. Purpose. Owners or operators shall install, operate, and maintain a groundwater monitoring system that is capable of determining the landfill's

impact on the quality of groundwater in the uppermost aquifer at the disposal unit boundary during the active life and postclosure care period of the landfill.

b. Program requirements. The groundwater monitoring program shall meet the requirements of subdivision 3 of this subsection and comply with all other applicable requirements of this section.

c. Director authority. The groundwater monitoring and reporting requirements set forth here are minimum requirements. The director may require, by amending the permit as allowed under 9VAC20-81-600 E, any owner or operator to install, operate, and maintain a groundwater monitoring system and conduct a monitoring program that contains requirements more stringent than this chapter imposes whenever it is determined that such requirements are necessary to protect human health and the environment.

3. Groundwater monitoring system.

a. System requirements. A groundwater monitoring system shall be installed consisting of a sufficient number of monitoring wells, at appropriate locations and depths, capable of yielding sufficient quantities of groundwater for sampling and analysis purposes from the uppermost aquifer that:

(1) Represent the quality of background groundwater that has not been affected by a release from the landfill; and

(2) Represent the quality of groundwater at the disposal unit boundary. The downgradient monitoring system shall be installed at the disposal unit boundary in a manner that ensures detection of groundwater contamination in the uppermost aquifer unless a variance has been granted by the director under 9VAC20-81-740.

(3) When physical obstacles preclude installation of groundwater monitoring wells at the disposal unit boundary, the downgradient monitoring wells may be installed at the closest practicable distance hydraulically downgradient from the boundary in locations that ensure detection of groundwater contamination in the uppermost aquifer.

b. Multiunit systems. The director may approve a groundwater monitoring system that covers multiple waste disposal units instead of requiring separate groundwater monitoring systems for each unit when the landfill has several units, provided the multiunit groundwater monitoring system meets the requirement of subdivision 3 of this subsection and can be demonstrated to be equally protective of human health and the environment as individual monitoring systems. The system for each waste disposal unit would be based on the following factors:

(1) Number, spacing, and orientation of the waste disposal units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the waste disposal units; and

(5) Type of waste accepted at the waste disposal units.

c. Well construction. All monitoring wells shall be of a size adequate for sampling and shall be cased and grouted in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The

annular space above the sampling depth shall be sealed with a suitable material to prevent contamination of samples and the groundwater.

d. Boring logs. A log shall be made of each newly installed monitoring well describing the soils or rock encountered, and the hydraulic conductivity of the geologic units (formations) encountered. A copy of the final log(s) with appropriate maps, including at a minimum a site plan showing the location of all monitoring wells, the total depth of monitoring well, the location of the screened interval, the top and bottom of sand or gravel pack, and the top and bottom of the seal shall be sent to the department with the certification required under subdivision 3 g of this subsection.

e. Well maintenance. The monitoring wells, piezometers, and other groundwater measurement, sampling, and analytical devices shall be operated and maintained in a manner that allows them to perform to design specifications throughout the duration of the groundwater monitoring program. Nonfunctioning monitoring wells must be replaced or repaired upon recognition of damage or nonperformance. Well repair or replacement shall be coordinated with the department for approval prior to initiating the action.

f. Network specifics. The number, spacing, and depths of monitoring wells included in a landfill's network shall be determined based on:

(1) Site-specific technical information that shall include thorough characterization by the owner or operator of:

(a) The thickness of any unsaturated geologic units or fill materials that may overlay the uppermost aquifer;

(b) The thickness and description of materials comprising the uppermost aquifer;

(c) Materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities, and effective porosities; and

(d) the calculated groundwater flow rate and direction within the uppermost aquifer including any seasonal and temporal fluctuations in groundwater flow.

(2) At least one upgradient and at least three downgradient monitoring wells.

(3) A lateral spacing between downgradient monitoring wells based on site-specific information supplied under subdivision 3 f (1) of this subsection.

g. Monitoring well certification. The groundwater monitoring well(s) shall, within 30 days of well(s) installation, be certified by a qualified groundwater scientist noting that all wells have been installed in accordance with the documentation submitted under subdivision 3 d of this subsection. Within 14 days of completing this certification, the owner or operator shall transmit the certification to the department.

4. The groundwater sampling and analysis requirements for the groundwater monitoring system are as follows:

a. Quality assurance and control. The groundwater monitoring program shall include consistent field sampling and laboratory analysis procedures that are designed to ensure monitoring results that provide an accurate representation of the groundwater quality at the background and downgradient wells. At a minimum the program shall include procedures and techniques for:

- (1) Sample collection;
- (2) Sample preservation and shipment;
- (3) Analytical procedures;
- (4) Chain of custody control; and
- (5) Quality assurance and quality control.

b. Analytical methods. The groundwater monitoring program shall include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure solid waste constituents in groundwater samples. Groundwater samples obtained pursuant to 9VAC20-81-250 B or C shall not be filtered prior to laboratory analysis. The sampling, analysis and quality control/quality assurance methods set forth in EPA document SW-846, as amended, shall be used. The department may require re-sampling if it believes the samples were not properly sampled or analyzed.

c. Groundwater rate and flow. Groundwater elevations at each monitoring well shall be determined immediately prior to purging each time a sample is obtained. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled pursuant to subsection B or C of this section. Groundwater elevations in wells that monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow, which could preclude accurate determination of groundwater flow rate and direction.

d. Background data. The owner or operator shall establish background groundwater quality in a hydraulically upgradient or background well, or wells, for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the landfill. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the landfill if they meet the requirements of subdivision 4 e of this subsection.

e. Alternate well provision. A determination of background quality may be based on sampling of wells that are not upgradient from the waste management area where:

- (1) Hydrogeologic conditions do not allow the owner or operator to determine what wells are upgradient; and
- (2) Sampling at these wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

f. Sampling and statistics. The number of samples collected to establish groundwater quality data shall be consistent with the appropriate statistical procedures determined pursuant to subdivision 4 g of this subsection.

g. Statistical methods. The owner or operator shall specify in the Groundwater Monitoring Plan the statistical method(s) listed in subsection D of this section that will be used in evaluating groundwater monitoring data for each monitoring constituent. The statistical test(s) chosen shall be applied separately for each groundwater constituent in each well after each individual sampling event required under subdivision B 2 or 3, C 2 or 3, or as required under 9VAC20-81-260 E 1.

h. Evaluation and response. After each sampling event required under B or C of this section, the owner or operator shall determine whether or not there is a

statistically significant increase over background values for each groundwater constituent required in the particular groundwater monitoring program by comparing the groundwater quality of each constituent at each monitoring well installed pursuant to subdivision 3 a of this subsection to the background value of that constituent. In determining whether a statistically significant increase has occurred, the owner or operator shall:

(1) Ensure the sampling result comparisons are made according to the statistical procedures and performance standards specified in subsection D of this section;

(2) Ensure that within 30 days of completion of sampling and laboratory analysis actions, the determination of whether there has been a statistically significant increase over background at each monitoring well has been completed; and

(3) If identified, the statistically significant increase shall be reported to the department within the notification timeframes identified in subsection B or C of this section and discussed in the quarterly or semi-annual report submission described under subdivision E 2 c of this section. Notifications qualified as being 'preliminary,' 'suspect,' 'unverified,' or otherwise not a final determination of a statistical exceedance will not be accepted.

i. Verification sampling. The owner or operator may at any time within the 30-day statistically significant increases determination period defined under A 4 h (2) of this section, obtain verification samples if the initial review of analytical data suggests results that might not be an accurate reflection of groundwater quality at the disposal unit boundary. Undertaking verification sampling is a voluntary action on the part of the owner or operator and shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under subdivision A 4 h (2), B 2 or 3, or C 2 or 3 of this section.

j. Data validation. The owner or operator may at any time within the 30-day statistically significant increases determination period defined under subdivision A 4 h (2) of this subsection, undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts is a voluntary action on the part of the owner or operator and shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under subdivision A 4 h (2), B 2 or 3, or C 2 or 3 of this section.

5. Alternate source demonstration allowance.

a. Allowance. As a result of any statistically significant increase identified while monitoring groundwater under subdivision B 2 or 3, or C 2 or 3 of this section, or at anytime within the Corrective Action process under 9VAC20-81-260, the owner or operator has the option of submitting an Alternate Source Demonstration report, certified by a qualified groundwater scientist, demonstrating:

(1) A source other than the landfill caused the statistical exceedance;

(2) The exceedance resulted from error in sampling, analysis, or evaluation;
or

(3) The exceedance resulted from a natural variation in groundwater quality.

b. Timeframes. A successful demonstration must be made within 90 days of noting a statistically significant increase. The director may approve a longer timeframe for submittal and approval of the Alternate Source Demonstration with appropriate justification.

c. Evaluation and response. Based on the information submitted in accordance with subdivision 5 a of this subsection, the director will:

(1) In the case of the successful demonstration of an error in sampling, analysis, or evaluation, allow the owner or operator to continue monitoring groundwater in accordance with the monitoring program in place at the time of the statistical exceedance;

(2) In the case of a successful demonstration of an alternate source for the release or natural variability in the aquifer matrix:

(a) Require changes in the groundwater monitoring system as needed to accurately reflect the groundwater conditions and allow the owner or operator to continue monitoring groundwater in accordance with the monitoring program in place at the time of the statistical exceedance;

(b) Require any changes to the monitoring system be completed prior to the next regularly scheduled groundwater monitoring event or within 90 days (which ever is greater); and

(c) Require any changes to the monitoring system be approved via the amendment process under 9VAC20-81-600 within 90 days of the approval of the alternate source demonstration.

(3) In the case of an unsuccessful Alternate Source Demonstration, require the owner or operator to initiate the actions that would otherwise be required as a result of the statistically significant increase noted under subdivision B 2 or 3, or C 2 or 3 of this section as appropriate.

6. Establishment of groundwater protection standards.

a. Requirement. Upon recognition of a statistically significant increase over background and while monitoring in the Assessment or Phase II monitoring programs defined under subdivision B 3 or C 3 of this section, the owner or operator shall propose a groundwater protection standard for all detected Table 3.1 Column B constituents. The proposed standards shall be submitted to the department by a qualified groundwater scientist and be accompanied by relevant historical groundwater sampling data to justify the proposed concentration levels.

b. Establishment process. The groundwater protection standards shall be established in the following manner:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under § 1412 of the Safe Drinking Water Act (40 CFR Part 141), the MCL for that constituent shall be automatically established as the groundwater protection standard upon submission of the proposed standards;

(2) If the owner or operator determines that a site-specific background concentration is greater than the MCL associated with that constituent under subdivision 6 b (1) of this subsection, the background value may be substituted for use as the groundwater protection standard in lieu of the MCL for that constituent upon receiving written department approval;

(3) For constituents for which no MCL has been promulgated, site-specific background concentration value(s) may be used upon receiving written department approval;

(4) For constituents for which no MCL has been promulgated a risk-based alternate concentration levels may be used if approved by the director as long as:

(a) The owner or operator submits a request to the department asking for approval to use risk-based alternate concentration levels for a specific list of constituents and identifies that these constituents lack an MCL. In the request the owner or operator shall specify whether site-specific, independently calculated, risk-based alternate concentration levels will be applied, or if the facility will accept the default department-provided limits.

(b) Both the alternate concentration levels that may be provided as default values by the department and those independently calculated by the owner or operator are demonstrated to meet the following criteria or factors before they can be used as groundwater protection standards:

(i) Groundwater quality - The potential for adverse quality effects considering the physical and chemical characteristics of the waste in the landfill, its potential for migration in the aquifer; the hydrogeological characteristics of the facility and surrounding land; the rate and direction of groundwater flow; the proximity and withdrawal rates of groundwater users; the current and future uses of groundwater in the area; the existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

(ii) Human exposure - Potential for health risks caused by exposure to waste constituents released from the landfill using federal guidelines for assessing the health risks of environmental pollutants; scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR Part 792); or equivalent standards. For carcinogens, the alternate concentration levels must be set based on a lifetime cancer risk level due to continuous lifetime exposure within the 1×10^{-4} to 1×10^{-6} range. For systemic toxicants, alternate concentration levels must be demonstrated to be levels to which the human population (including sensitive subgroups) could be exposed to on a daily basis without the likelihood of appreciable risk of deleterious effects during a lifetime.

(iii) Surface water - The potential adverse effect on hydraulically connected surface water quality based on the volume, physical and chemical characteristics of the waste in the landfill; the hydrogeological characteristics of the facility and surrounding land; the rate and direction of groundwater flow; the patterns of rainfall in the region; the proximity of the landfill to surface waters; the current and future uses of surface waters in the area and any water quality standards established for those surface waters; the existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality.

(iv) Other adverse effects - Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; the persistence and permanence of the potential adverse effects; and the potential for health risks caused by human exposure to waste constituents using factors shown in subdivision b (4) (b) (ii) of this subsection.

(5) In making any determination regarding the use of alternate concentration levels under this section, the director will:

(a) consider any identification of underground sources of drinking water as identified by EPA under 40 CFR 144.7,

(b) consider additional or modified monitoring requirements or control measures,

(c) include a schedule for the periodic review of the alternate concentration levels, or

(d) approve the alternate concentration levels as proposed or issue modified alternate concentration levels.

c. Implementation. Groundwater protection standards shall be considered established for the facility upon completion of the actions described under either subdivision A6 b (1), (2), (3) or if necessary (4) and shall be placed in the facility Operating Record and shall be used during subsequent comparisons of groundwater sampling data consistent with the requirements of subdivision B 3 f or C 3 e of this section.

d. MCL and background revisions. After establishment of groundwater protection standards under subdivision B 6 b, if the standards are modified as a result of revisions to any MCL or department-approved background, the facility shall update its listing of groundwater protection standards and shall place the new list in the Operating Record and shall use the new values during subsequent comparisons of sampling data consistent with the requirements of subdivision B 3 f or C 3 e of this section.

e. Alternate concentration levels revisions. After establishment of groundwater protection standards under subdivision B 6 b of this section, if the department-approved alternate concentration levels change based on information released by EPA, to the extent practical, the department will issue revisions to the alternate concentration levels for facility use no more often than an annual basis. The facility shall use the alternate concentration levels listing in effect at the time the sampling event takes place when comparing the results against the groundwater protection standards under subdivision B 3 f or C 3 e of this section.

B. Monitoring for sanitary landfills.

1. Applicability.

a. Existing facilities. Except for those sanitary landfills identified in subdivision C 1 of this section, existing sanitary landfill facilities and closed facilities that have accepted waste on or after October 9, 1993, and in the case of 'small' landfills on or after April 9, 1994, shall be in compliance with the detection monitoring requirements specified in subdivision 2 of this subsection unless existing sampling data requires a move to assessment monitoring described under subdivision 3 of this subsection.

b. New facilities. Facilities placed in operation to receive waste after October 9, 1993, shall be in compliance with the detection monitoring requirements specified in B 2 of this section before waste can be placed in the landfill unless existing sampling data requires a move to assessment monitoring described under subdivision 3 of this subsection.

c. Closed facilities. Unless an extension to the deadline above has been granted by the director, closed facilities that have ceased to accept any waste

on or before October 9, 1993, and in the case of a 'small' landfill, before April 9, 1994, may comply with the "State Monitoring Program" monitoring requirements specified in subdivision C 2 or 3 of this section.

d. Other facilities. Owners or operators of disposal facilities not subject to the federal groundwater monitoring requirements prescribed under 40 CFR Parts 257 and 258 must perform the groundwater monitoring described in subdivision C 2 or 3 of this section.

e. Proximity to wetlands. Owners or operators of sanitary landfills that accepted waste after June 30, 1999, must:

(1) Perform quarterly groundwater monitoring unless the director determines that less frequent monitoring is necessary consistent with the requirements of the special provisions regarding wetlands in §10.1-1408.5 of the Code of Virginia.

(2) The quarterly monitoring frequency shall remain in effect until the department is notified waste is no longer being accepted at the sanitary landfill.

(3) This requirement will not limit the authority of the Waste Management Board or the director to require more frequent groundwater monitoring if required to protect human health and the environment.

(4) For purposes of this subdivision "proximity to wetlands" shall be defined as landfills that were constructed on a wetland, has a potential hydrologic connection to such a wetland in the event of an escape of liquids from the facility, or is within a mile of such a wetland.

2. Detection monitoring program.

a. Sampling requirements. All sanitary landfills shall implement detection monitoring except as otherwise provided in subdivision 1 of this subsection. The monitoring frequency for all constituents listed in Table 3.1 Column A shall be as follows:

(1) Initial sampling period.

(a) For facilities that monitor groundwater on a semi-annual basis, a minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed for the Table 3.1 Column A constituents during the first semi-annual sampling period. A semi-annual period is defined under 9VAC20-81-10.

(b) For facilities that monitor groundwater on a quarterly basis as a result of subdivision 1 e of this subsection, a minimum of four samples from each well (background and downgradient) shall be collected and analyzed for the Table 3.1 Column A constituents. The samples shall be collected within the first quarterly period, using a schedule that ensures, to the greatest extent possible, an accurate calculation of background concentrations.

(2) Subsequent sampling events. At least one sample from each well (background and downgradient) shall be collected and analyzed during subsequent semi-annual or quarterly events during the active life and postclosure period. Data from subsequent background sampling events may be added to the previously calculated background data so that the facility maintains the most accurate representation of background groundwater quality with which to carry out statistical analysis required under subdivision A 4 h of this section.

(3) Alternate sampling events. The director may specify an appropriate alternate frequency for repeated sampling and analysis during the active life (including closure) and the postclosure care period. The alternate frequency during the active life (including closure) and the postclosure period shall be no less than annual. The alternate frequency shall be based on consideration of the following factors:

- (a) Lithology of the aquifer and unsaturated zone;
- (b) Hydraulic conductivity of the aquifer and unsaturated zone;
- (c) Groundwater flow rates;
- (d) Minimum distance between upgradient edge of the disposal unit boundary and downgradient monitoring well screen (minimum distance of travel); and
- (e) Resource value of the aquifer.

b. Evaluation and response. If the owner or operator determines under subdivision A 4 h of this section, that there is:

(1) A statistically significant increase over background as determined by a method meeting the requirements of subsection D of this section, for one or more of the constituents listed in Table 3.1 Column A at any of the monitoring wells at the disposal unit boundary during any detection monitoring sampling event, the owner or operator shall:

(a) Within 14 days of this finding, notify the department of this fact, indicating which constituents have shown statistically significant increases over background levels; and

(b) Within 90 days, (i) establish an assessment monitoring program meeting the requirements of subdivision 3 of this subsection, or (ii) submit an Alternate Source Demonstration as specified in subdivision A 5 of this section. If, after 90 days, a successful demonstration has not been made, the owner or operator shall initiate an assessment monitoring program as otherwise required in subdivision 3 of this subsection. The 90-day Alternate Source Demonstration period may be extended by the director for good cause.

(2) No statistically significant increase over background as determined by a method meeting the requirements of subsection D of this section, for any of the constituents listed in Table 3.1 Column A at any of the monitoring wells at the disposal unit boundary during any detection monitoring sampling event; the owner or operator may remain in detection monitoring and include a discussion of the sampling results and statistical analysis in the semi-annual or quarterly report required under subdivision E 2 c of this section.

3. Assessment monitoring program. The owner or operator shall implement the assessment monitoring program whenever a statistically significant increase over background has been detected during monitoring conducted under the detection monitoring program.

a. Sampling requirements. Within 90 days of recognizing a statistically significant increase over background for one or more of the constituents listed in Table 3.1 Column A, the owner or operator shall, unless in receipt of an approval to an Alternate Source Demonstration under subdivision A 5 of this section or a director-approved extension, conduct the initial assessment monitoring sampling event for the constituents found in Table 3.1 Column B. A minimum of one sample from each well installed under subdivision A 3 a of

this section shall be collected and analyzed during the initial and all subsequent annual Table 3.1 Column AB sampling events.

b. Director provisions:

(1) The owner or operator may request that the director approve an appropriate subset of monitoring wells that may remain in detection monitoring defined under subdivision 2 of this subsection, based on the results of the initial, or subsequent annual Table 3.1 Column B sampling events. Monitoring wells may be considered for the subset if:

(a) They show no detections of Table 3.1 Column B constituents other than those already previously detected in detection monitoring defined under subdivision 2 of this subsection; and

(b) They display no statistically significant increases over background for any constituents on the Table 3.1 Column A list. If an increase is subsequently recognized in a well approved for the subset, the well shall no longer be considered part of the detection monitoring subset.

(2) The owner or operator may request the director delete any of the Table 3.1 Column B monitoring constituents from the assessment monitoring program if the owner or operator demonstrates that the deleted constituents are not reasonably expected to be in or derived from the waste.

(3) The director may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Table 3.1 Column B constituents required by subdivision 3 a of this subsection during the active life and postclosure care period based on the consideration of the following factors:

(a) Lithology of the aquifer and unsaturated zone;

(b) Hydraulic conductivity of the aquifer and unsaturated zone;

(c) Groundwater flow rates;

(d) Minimum distance between upgradient edge of the disposal unit boundary and downgradient monitoring well screen (minimum distance of travel);

(e) Resource value of the aquifer; and

(f) Nature (fate and transport) of any constituents detected in response to subdivision 3 f of this subsection.

c. Development of background. After obtaining the results from the initial or subsequent annual sampling events required in subdivision 3 a of this subsection, the owner or operator shall:

(1) Within 14 days, notify the department identifying the Table 3.1 Column B constituents that have been detected;

(2) Within 90 days, and on at least a semi-annual basis thereafter, resample all wells installed under subdivision A 3 a of this section, conduct analyses for all constituents in Table 3.1 Column A as well as those constituents in Column B that are detected in response to subdivision 3 a of this subsection and subsequent Table 3.1 Column B sampling events as may be required of this section, and report this data in the semi-annual or quarterly report defined under subdivision E 2 c of this section;

(3) Within 180 days of the initial sampling event, establish background concentrations for any Table 3.1 Column B constituents detected pursuant to subdivision B 3 a of this subsection. A minimum of four independent samples

from each well (background and downgradient) shall be collected and analyzed to establish background for the detected constituents.

d. Establishment of groundwater protection standards. Within 30 days of establishing background under subdivision 3 c (3) of this subsection, submit proposed groundwater protection standards for all constituents detected under Assessment monitoring. The groundwater protection standards shall be approved by the director in accordance with the provisions of subdivision A 6 of this section.

e. Groundwater monitoring plan. No later than 60 days after approval of the groundwater protection standard in accordance with subdivision A 6 of this section, the owner or operator shall submit an updated Groundwater Monitoring Plan that details the site monitoring well network and sampling and analysis procedures undertaken during groundwater monitoring events. The owner or operator shall additionally:

(1) No later than 30 days after the submission of the Groundwater Monitoring Plan, request a permit amendment to incorporate the plan and related groundwater monitoring modules into the landfill's permit in accordance with 9VAC20-81-600. The department may waive the requirement for a permit amendment if the Groundwater Monitoring Plan included in the landfill's permit reflects current site conditions in accordance with the regulations.

(2) If the 30-day timeframe specified in subdivision 3 e (1) of this subsection is exceeded, the director will modify the permit in accordance with 9VAC20-81-600 E.

f. Evaluation and response.

(1) If the concentrations of all Table 3.1 Column B constituents are shown to be at or below background values, using the statistical procedures in subsection D of this section, for two consecutive Table 3.1 Column B sampling events, the owner or operator shall notify the director of this finding in the semi-annual or quarterly monitoring report and may return to detection monitoring defined under subdivision 2 of this subsection.

(2) If the concentrations of any Table 3.1 Column B constituents are found to be above background values, but below the groundwater protection standards established under subdivision A 6 of this section using the statistical procedures in subsection D of this section, the owner or operator shall continue in assessment monitoring in accordance with this section and present the findings to the department in the semi-annual or quarterly report.

(3) If one or more Table 3.1 Column B constituents are detected at statistically significant levels above the groundwater protection standard established under subdivision A 6 of this section using the statistical procedures in subsection D of this section, the owner or operator shall:

(a) Within 14 days of this finding, notify the department identifying the Table 3.1 constituents that have exceeded the groundwater protection standard. The notification will include a statement that within 90 days the owner or operator will either:

(i) Undertake characterization and assessment actions required under 9VAC20-81-260 C 1; or

(ii) Submit an Alternate Source Demonstration as specified in subdivision A 5 of this section. If a successful demonstration is made within 90 days, the

owner or operator may continue monitoring in accordance with the assessment monitoring program pursuant to subdivision 3 of this subsection. If the 90-day period passes without demonstration approval, the owner or operator shall comply with the actions under 9VAC20-81-260 C within the timeframes specified unless the director has granted an extension to those timeframes.

(b) Describe the results in the semi-annual or quarterly report.

C. Monitoring for CDD, industrial, and State Monitoring Program sanitary landfills.

1. Applicability.

a. Sanitary landfills. Owners or operators of sanitary disposal facilities that have ceased to accept solid waste prior to the federally imposed deadline of October 9, 1993, and in the case of a "small landfill" before April 9, 1994, are eligible, with the director's approval, to conduct the state groundwater monitoring program described in this section in lieu of the groundwater monitoring program required under subdivision B 2 or 3 of this section.

b. CDD and industrial landfills. Owners or operators of CDD and industrial landfills not subject to the federal groundwater monitoring requirements prescribed under 40 CFR Parts 257 and 258 will perform the groundwater monitoring described in this section.

c. Other landfills. All other landfills excluding sanitary landfills, including those that accepted hazardous waste from conditionally exempt small quantity generators after July 1, 1998, will perform the groundwater monitoring described in this section.

2. First determination monitoring program.

a. Sampling requirements. A first determination monitoring program shall consist of a background-establishing period followed by semi-annual sampling and analysis for the constituents shown in Table 3.1 Column A at all wells installed under subdivision A 3 a of this section. Within 14 days of each event during first determination monitoring, notify the department identifying the Table 3.1 Column A constituents that have been detected.

b. Development of background. Within 360 days of the initial first determination sampling event:

(1) Establish background concentrations for any constituents detected pursuant to subdivision 2 a of this subsection.

(a) A minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed to establish background concentrations for the detected constituents using the procedures in subsection D of this section.

(b) In those cases where new wells are installed downgradient of waste disposal units that already have received waste, but these wells have not yet undergone their initial sampling event, collection of four independent samples for background development will not be required.

(2) Within 30 days of completing the background calculations required under subdivision 2 b (1) (a) of this subsection, submit a first determination report, signed by a qualified groundwater scientist, to the department which must include a summary of the background concentration data developed during the background sampling efforts as well as the statistical calculations for each

constituent detected in the groundwater during the background sampling events.

c. Semi-annual sampling and analysis. Within 90 days of the last sampling event during the background-establishing period and at least semi-annually thereafter, sample each monitoring well in the compliance network for analysis of the constituents in Table 3.1 Column A.

d. Evaluation and response. Upon determination of site background under subdivision 2 b (1) (a) of this subsection, the results of all subsequent first determination monitoring events shall be assessed as follows:

(1) If no Table 3.1 Column A constituents are found to have entered the groundwater at statistically significant levels over background, the owner or operator shall:

(a) Remain in first determination monitoring; and

(b) May request the director delete any Table 3.1 Column A constituents from the semi-annual sampling list if the owner or operator demonstrates that the proposed deleted constituents are not reasonably expected to be in or derived from the waste.

(2) If the owner or operator recognizes a statistically significant increase over background for any Table 3.1 Column A constituent, within 14 days of this finding, the owner or operator shall notify the department identifying the Table 3.1 Column A constituents that have exceeded background levels. The notification will include a statement that within 90 days the owner or operator will:

(a) Initiate a Phase II sampling program; or

(b) Submit an Alternate Source Demonstration under subdivision A 5 of this section.

(3) If a successful demonstration is made and approved within the timeframes established under subdivision A 5 of this section, the owner or operator may remain in First Determination monitoring.

(4) If a successful demonstration is not made and approved within the timeframes established under subdivision A 5 of this section, the owner or operator shall initiate Phase II monitoring in accordance with the timeframes in subdivision C 3 of this section. The director may approve a longer timeframe with appropriate justification.

3. Phase II monitoring.

a. Sampling requirements. The owner or operator shall:

(1) Within 90 days of noting the exceedance over background determined under subdivision C 2 d of this section, sample the groundwater in all monitoring wells installed under subdivision A 3 a of this section for all Table 3.1 Column B constituents;

(2) After completing the initial Phase II sampling event, continue to sample and analyze groundwater on a semi-annual basis within the Phase II monitoring program;

b. Background development. If no additional Table 3.1 Column B constituents are detected other than those previously detected under Column A, which already have established their background levels, the owner or operator shall follow the requirements under subdivision 3 c of this subsection regarding

groundwater protection standard establishment while continuing to sample for the Table 3.1 Column A list on a semi-annual basis. If one or more additional Table 3.1 Column B constituents are detected during the initial Phase II sampling event:

(1) Within 360 days, establish a background value for each additional detected Table 3.1 Column B constituent.

(2) Submit a Phase II Background report within 30 days of completing the background calculations including a summary of the background concentration data for each constituent detected in the groundwater during the Table 3.1 Column B background sampling events.

(3) If any detected Table 3.1 Column B constituent is subsequently not detected for a period of two years, the owner or operator may petition the director to delete the constituent from the list of detected Table 3.1 Column B constituents that must be sampled semi-annually.

c. Establishment of groundwater protection standards. No later than:

(1) Thirty days after submitting the Phase II Background report required under the provisions of subdivision 3 b (2) of this subsection, or within 30 days of obtaining the results from the initial Table 3.1 Column B sampling event indicating no further sampling for background determination is necessary, the owner or operator shall propose a groundwater protection standard for all detected Table 3.1 constituents.

(2) The groundwater protection standard proposed shall be established in a manner consistent with the provisions in subdivision A 6 of this section.

d. Groundwater monitoring plan. No later than 60 days after establishment of groundwater protection standards in accordance with subdivision A 6 of this section, the owner or operator shall submit an updated Groundwater Monitoring Plan that details the site monitoring well network and sampling and analysis procedures undertaken during groundwater monitoring events. The department may waive the requirement for an updated plan if the Groundwater Monitoring Plan included in the landfill's permit reflects current site conditions in accordance with the regulations.

(1) No later than 30 days after the submission of the Groundwater Monitoring Plan, the owner or operator shall request a permit amendment to incorporate the updated plan and related groundwater monitoring modules into the landfill's permit in accordance with 9VAC20-81-600.

(2) If the 30-day timeframe specified in subdivision 3 d (1) of this subsection is exceeded, the director will modify the permit in accordance with 9VAC20-81-600 E.

e. Evaluation and response. After each subsequent Phase II monitoring event following establishment of groundwater protection standards, the concentration of Table 3.1 Column B constituents found in the groundwater at each monitoring well installed pursuant to subdivision A 3 a of this section will be evaluated against the groundwater protection standards. The evaluation will be presented to the department in a semi-annual Phase II report. The evaluation will be as follows:

(1) If all Table 3.1 constituents are shown to be at or below background values, using the statistical procedures in subsection D of this section, for two consecutive Table 3.1 Column B sampling events, the owner or operator

shall notify the director of this finding in the semi-annual report and may return to first determination monitoring;

(2) If any Table 3.1 Column B constituents are found to be above background values, but are below the established groundwater protection standard using the statistical procedures in subsection D of this section, the owner or operator shall continue semi-annual Phase II monitoring and present the findings in a semi-annual report;

(3) If one or more Table 3.1 Column B constituents are above the established groundwater protection standard using the statistical procedures in subsection D of this section, the owner or operator shall:

(a) Notify the department within 14 days of this finding. The notification will include a statement that within 90 days the owner or operator will either: (i) undertake the characterization and assessment actions required under 9VAC20-81-260 C 1; or (ii) submit an alternate source demonstration as specified in subdivision A 5 of this section. If a successful demonstration is made within 90 days, the owner or operator may continue monitoring in accordance with Phase II monitoring program. If the 90-day period is exceeded, the owner or operator shall comply with the timeframes of 9VAC20-81-260 C unless the director has granted an extension to those timeframes; and

(b) Present the findings in the semi-annual report.

D. Statistical methods and constituent lists.

1. Acceptable test methods. The following statistical test methods may be used to evaluate groundwater monitoring data:

a. A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

b. An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

c. A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

d. A control chart approach that gives control limits for each constituent.

e. Another statistical test method that meets the performance standards specified below. Based on the justification submitted to the department, the director may approve the use of an alternative test. The justification must demonstrate that the alternative method meets the performance standards in subdivision 2 of this subsection.

2. Performance standards. Any statistical method chosen by the owner or operator shall comply with the following performance standards, as appropriate:

a. The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of monitoring parameters or constituents. If

the distribution is shown by the owner or operator to be inappropriate for a normal theory test, then the data shall be transformed or a distribution-free theory test shall be used. If the distributions for the constituents differ, more than one statistical method may be needed.

b. If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment-wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained.

c. If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

d. If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

e. The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any estimated quantitation limit (EQL) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the landfill.

f. If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

E. Recordkeeping and reporting.

1. Records pertaining to groundwater monitoring activities on site shall be retained at a specified location by the owner or operator throughout the active life and postclosure care period of the landfill, and shall include at a minimum:

a. All historical groundwater surface elevation data obtained from wells installed pursuant to subdivision A 3 a of this section;

b. All historical laboratory analytical results for groundwater sampling events required under the groundwater monitoring programs as described in this section;

c. All records of well installation, repair, or abandonment actions;

d. All department correspondence to the landfill; and

e. All approved variances, well subsets, wetlands, or other such director/department approvals.

2. Reporting requirements.

a. Annual report.

(1) An Annual Groundwater Monitoring Report shall be submitted by the owner or operator to the department no later than 120 days from the completion of sampling and analysis conducted under subdivision A 4 h of this section for the second semi-annual event or fourth quarterly event during each calendar year and shall be accompanied by:

(a) A signature page; and

(b) A completed QA/QC DEQ Form ARSC-01.

(2) The technical content of the annual report shall at a minimum, contain the following topical content:

(a) The landfill's name, type, permit number, current owner or operator, and location keyed to a USGS topographic map;

(b) Summary of the design type (i.e., lined versus unlined), operational history (i.e., trench fill versus area fill), and size (acres) of the landfill including key dates such as beginning and termination of waste disposal actions and dates different groundwater monitoring phases were entered;

(c) Description of the surrounding land use noting whether any adjoining land owners utilize private wells as a potable water source;

(d) A discussion of the topographic, geologic, and hydrologic setting of the landfill including a discussion on the nature of the uppermost aquifer (i.e., confined versus unconfined) and proximity to surface waters;

(e) A discussion of the monitoring wells network noting any modifications that were made to the network during the year or any nonperformance issues and a statement noting that the monitoring well network meets (or did not meet) the requirements of subdivision A 3 of this section;

(f) A listing of the groundwater sampling events undertaken during the previous calendar year;

(g) A historical table listing the detected constituents, and their concentrations identified in each well during the sampling period; and

(h) Evaluations of and appropriate responses to the groundwater elevation data; groundwater flow rate as calculated using the prior years elevation data; groundwater flow direction (as illustrated on a potentiometric surface map); and sampling and analytical data obtained during the past calendar year.

b. Semi-annual or quarterly report.

(1) After each sampling event has been completed for the 1st semi-annual or first, second and third quarterly groundwater sampling events, a semi-annual or quarterly monitoring report shall be submitted under separate cover by the owner or operator to the department no later than 120 days from the completion of sampling and analysis conducted under subdivision A 4 h of this section, unless as allowed under a director-approved extension. The report shall contain the following items:

(a) Signature page signed by a professional geologist or qualified groundwater scientist;

(b) Landfill name and permit number;

(c) Statement noting whether or not all monitoring points within the permitted network installed to meet the requirements of subdivision A 3 a of this section

were sampled as required under subdivision B 2 or 3 or C 2 or 3 during the event;

(d) Calculated rate of groundwater flow during the sampling period as required under subdivision A 4 c of this section;

(e) The groundwater flow direction as determined during the sampling period as required under subdivision A 4 c of this section presented as either plain text or graphically as a potentiometric surface map;

(f) Statement noting whether or not there were statistically significant increases over background or groundwater protection standards during the sampling period, the supporting statistical calculations, and reference to the date the director was notified of the increase pursuant to timeframes in subdivision B 2 or 3 or C 2 or 3, if applicable;

(g) Copy of the full Laboratory Analytical Report including dated signature page (laboratory manager or representative) to demonstrate compliance with the timeframes of subdivision A 4 h of this section. The department will accept the lab report in CD-ROM format.

(2) In order to reduce the reporting burden on the owner or operator and potential redundancy within the operating record, a discussion of the second semi-annual or fourth quarterly sampling event results may be presented in the Annual Report submission.

c. Other submissions. Statistically significant increase notifications, well certifications, the first determination report, alternate source demonstration, nature and extent study, assessment of corrective measures, presumptive remedy proposal, corrective action plan or monitoring plan, or other such report or notification types as may be required under 9VAC20-81-250 or 9VAC20-81-260, shall be submitted in a manner which achieves the timeframe requirements as listed in 9VAC20-81-250 or 9VAC20-81-260.

TABLE 3.1
GroundWater Solid Waste Constituent Monitoring List

Column A – Common Name ^{1, 2}	Column B – Common Name ^{1, 2}	CAS RN ³
	Acenaphthene	83-32-9
	Acenaphthylene	208-96-8
Acetone	Acetone	67-64-1
	Acetonitrile; Methyl cyanide	75-05-8
	Acetophenone	98-86-2
	2-Acetylaminofluorene; 2-AAF	53-96-3
	Acrolein	107-02-8
Acrylonitrile	Acrylonitrile	107-13-1
	Aldrin	309-00-2
	Allyl chloride	107-05-1
	4-Aminobiphenyl	92-67-1

	Anthracene	120-12-7
Antimony	Antimony	(Total)
Arsenic	Arsenic	(Total)
Barium	Barium	(Total)
Benzene	Benzene	71-43-2
	Benzo[a]anthracene; Benzanthracene	56-55-3
	Benzo[b]fluoranthene	205-99-2
	Benzo[k]fluoranthene	207-08-9
	Benzo[ghi]perylene	191-24-2
	Benzo[a]pyrene	50-32-8
	Benzyl alcohol	100-51-6
Beryllium	Beryllium	(Total)
	alpha-BHC	319-84-6
	beta-BHC	319-85-7
	delta-BHC	319-86-8
	gamma-BHC; Lindane	58-89-9
	Bis(2-chloroethoxy)methane	111-91-1
	Bis(2-chloroethyl) ether; Dichloroethyl ether	111-44-4
	Bis(2-chloro-1-methylethyl) ether; 2, 2'-Dichlorodiisopropyl ether; DCIP	108-60-1, See note 4
	Bis(2-ethylhexyl)phthalate	117-81-7
Bromochloromethane;.Chlorobromomethane	Bromochloromethane;.Chlorobromomethane	74-97-5
Bromodichloromethane;.Dibromochloromethane	Bromodichloromethane;.Dibromochloromethane	75-27-4
Bromoform; Tribromomethane	Bromoform; Tribromomethane	75-25-2
	4-Bromophenyl phenyl ether	101-55-3
	Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7
Cadmium	Cadium	(Total)
Carbon disulfide	Carbon disulfide	75-15-0
Carbon tetrachloride	Carbon tetrachloride	56-23-5
	Chlordane	Note 5
	p-Chloroaniline	106-47-8
Chlorobenzene	Chlorobenzene	108-90-7

	Chlorobenzilate	510-15-6
	p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7
Chloroethane; Ethyl chloride	Chloroethane; Ethyl chloride	75-00-3
Chloroform; Trichloromethane	Chloroform; Trichloromethane	67-66-3
	2-Chloronaphthalene	91-58-7
	2-Chlorophenol	95-57-8
	4-Chlorophenyl phenyl ether	7005-72-3
	Chloroprene	126-99-8
Chromium	Chromium	(Total)
	Chrysene	218-01-9
Cobalt	Cobalt	(Total)
Copper	Copper	(Total)
	m-Cresol; 3-methyphenol	108-39-4
	o-Cresol; 2-methyphenol	95-48-7
	p-Cresol; 4-methyphenol	106-44-5
	Cyanide	57-12-5
	2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7
	4,4'-DDD	72-54-8
	4,4'-DDE	72-55-9
	4,4'-DDT	50-29-3
	Diallate	2303-16-4
	Dibenz[a,h]anthracene	53-70-3
	Dibenzofuran	132-64-9
Dibromochloromethane; Chlorodibromomethane	Dibromochloromethane; Chlorodibromomethane	124-48-1
1,2-Dibromo-3-chloropropane; DBCP	1,2-Dibromo-3-chloropropane; DBCP	96-12-8
1,2-Dibromoethane; Ethylene dibromide; EDB	1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
	Di-n-butyl phthalate	84-74-2
o-Dichlorobenzene; 1,2-Dichlorobenzene	o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
	m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1
p-Dichlorobenzene; 1,4-Dichlorobenzene	p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
	3,3'-Dichlorobenzidine	91-94-2

trans-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	110-57-6
	Dichlorodifluoromethane; CFC 12;	75-71-8
1,1-Dichloroethane; Ethylidene chloride	1,1-Dichloroethane; Ethylidene chloride	75-34-3
1,2-Dichloroethane; Ethylene dichloride	1,2-Dichloroethane; Ethylene dichloride	107-06-2
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
trans-1,2-Dichloroethylene	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
	2,4-Dichlorophenol	120-83-2
	2,6-Dichlorophenol	87-65-0
1,2-Dichloropropane; Propylene dichloride	1,2-Dichloropropane; Propylene dichloride	78-87-5
	1,3-Dichloropropane; Trimethylene dichloride	142-28-9
	2, 2-Dichloropropane; isopropylidene chloride	594-20-7
	1,1-Dichloropropene	563-58-6
cis-1,3-Dichloropropene	cis-1,3-Dichloropropene	10061-01-5
trans-1,3-Dichloropropene	trans-1,3-Dichloropropene	10061-02-6
	Dieldrin	60-57-1
	Diethyl phthalate	84-66-2
	O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2
	Dimethoate	60-51-5
	p-(Dimethylamino)azobenzene	60-11-7
	7,12-Dimethylbenz[a]anthracene	57-97-6
	3,3'-Dimethylbenzidine	119-93-7
	2,4-Dimethylphenol; m-Xylenol	105-67-9
	Dimethyl phthalate	131-11-3
	m-Dinitrobenzene	99-65-0
	4,6-Dinitro-o-cresol; 4,6-Dinitro-2-methylphenol	534-52-1
	2,4-Dinitrophenol	51-28-5
	2,4-Dinitrotoluene	121-14-2
	2,6-Dinitrotoluene	606-20-2

	Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7
	Di-n-octyl phthalate	117-84-0
	Diphenylamine	122-39-4
	Disulfoton	298-04-4
	Endosulfan I	959-96-8
	Endosulfan II	33213-65-9
	Endosulfan sulfate	1031-07-8
	Endrin	72-20-8
	Endrin aldehyde	7421-93-4
Ethylbenzene	Ethylbenzene	100-41-4
	Ethyl methacrylate	97-63-2
	Ethylmethanesulfonate	62-50-0
	Famphur	52-85-7
	Fluoranthene	206-44-0
	Fluorene	86-73-7
	Heptachlor	76-44-8
	Heptachlor epoxide	1024-57-3
	Hexachlorobenzene	118-74-1
	Hexachlorobutadiene	87-68-3
	Hexachlorocyclopentadiene	77-47-4
	Hexachloroethane	67-72-1
	Hexachloropropene	1888-71-7
2-Hexanone; Methyl butyl ketone	2-Hexanone; Methyl butyl ketone	591-78-6
	Indeno[1,2,3-cd]pyrene	193-39-5
	Isobutyl alcohol	78-83-1
	Isodrin	465-73-6
	Isophorone	78-59-1
	Isosafrole	120-58-1
	Kepone	143-50-0

Lead	Lead	(Total)
	Mercury	(Total)
	Methacrylonitrile	126-98-7
	Methapyrilene	91-80-5
	Methoxychlor	72-43-5
Methyl bromide; Bromomethane	Methyl bromide; Bromomethane	74-83-9
Methyl chloride; Chloromethane	Methyl chloride; Chloromethane	74-87-3
	3-Methylcholanthrene	56-49-5
Methyl ethyl ketone; MEK; 2-Butanone	Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
Methyl iodide; Iodomethane	Methyl iodide; Iodomethane	74-88-4
	Methyl methacrylate	80-62-6
	Methyl methanesulfonate	66-27-3
	2-Methylnaphthalene	91-57-6
	Methyl parathion; Parathion methyl methyl	298-00-0
4-Methyl-2-pentanone; Methyl isobutyl ketone	4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
Methylene bromide; Dibromomethane	Methylene bromide; Dibromomethane	74-95-3
Methylene chloride; Dichloromethane	Methylene chloride; Dichloromethane	75-09-2
	Naphthalene	91-20-3
	1,4-Naphthoquinone	130-15-4
	1- Naphthylamine	134-32-7
	2-Naphthylamine	91-59-8
Nickel	Nickel	(Total)
	o-Nitroaniline; 2-Nitroaniline	88-74-4
	m-Nitroaniline; 3-Nitroaniline	99-09-2
	p-Nitroaniline; 4-Nitroaniline	100-01-6
	Nitrobenzene	98-95-3
	o-Nitrophenol; 2-Nitrophenol	88-75-5
	p-Nitrophenol; 4-Nitrophenol	100-02-7
	N-Nitrosodi-n-butylamine	924-16-3
	N-Nitrosodiethylamine	55-18-5
	N-Nitrosodimethylamine	62-75-9
	N-Nitrosodiphenylamine	86-30-6

	N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine	621-64-7
	N-Nitrosomethylethalamine	10595-95-6
	N-Nitrosopiperidine	100-75-4
	N-Nitrosopyrrolidine	930-55-2
	5-Nitro-o-toluidine	99-55-8
	Parathion	56-38-2
	Pentachlorobenzene	608-93-5
	Pentachloronitrobenzene	82-68-8
	Pentachlorophenol	87-86-5
	Phenacetin	62-44-2
	Phenanthrene	85-01-8
	Phenol	108-95-2
	p-Phenylenediamine	106-50-3
	Phorate	298-02-2
	Polychlorinated biphenyls; PCBS; Aroclors	Note 6
	Pronamide	23950-58-5
	Propionitrile; Ethyl cyanide	107-12-0
	Pyrene	129-00-0
	Safrole	94-59-7
Selenium	Selenium	(Total)
Silver	Silver	(Total)
	Silvex; 2,4,5-TP	93-72-1
Styrene	Styrene	100-42-5
	Sulfide	18496-25-8
	2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5
	1,2,4,5-Tetrachlorobenzene	95-94-3
1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	630-20-6
1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	79-34-5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4

	2,3,4,6-Tetrachlorophenol	58-90-2
Thallium	Thallium	(Total)
	Tin	(Total)
Toluene	Toluene	108-88-3
	o-Toluidine	95-53-4
	Toxaphene	Note 7
	1,2,4-Trichlorobenzene	120-82-1
1,1,1-Trichloroethane; Methychloroform	1,1,1-Trichloroethane; Methychloroform	71-55-6
1,1,2-Trichloroethane	1,1,2-Trichloroethane	79-00-5
Trichloroethylene; Trichloroethene ethene	Trichloroethylene; Trichloroethene ethane	79-01-6
Trichlorofluoromethane; CFC-11	Trichlorofluoromethane; CFC-11	75-69-4
	2,4,5-Trichlorophenol	95-95-4
	2,4,6-Trichlorophenol	88-06-2
1,2,3-Trichloropropane	1,2,3-Trichloropropane	96-18-4
	O,O,O-Triethyl phosphorothioate	126-68-1
	sym-Trinitrobenzene	99-35-4
Vanadium	Vanadium	(Total)
Vinyl acetate	Vinyl acetate	108-05-4
Vinyl chloride; Chloroethene	Vinyl chloride; Chloroethene	75-01-4
Xylene(total)	Xylene(total)	Note 8
Zinc	Zinc	(Total)

NOTES:

¹ Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

² The corresponding Chemical Abstracts Service Index name as used in the 9th Collective Index, may be found in Appendix II of 40 CFR 258.

³ Chemical Abstracts Service Registry Number. Where "Total" is entered, all species in the groundwater that contains this element are included.

⁴ This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 22'-oxybis2-chloro (CAS RN 39638-32-9).

⁵ Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12739-03-6).

⁶ Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN

53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5).

⁷ Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

⁸ Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7).

9VAC20-81-260. Corrective action program.

A. Corrective action is required whenever one or more groundwater protection standard is exceeded at statistically significant levels. An owner or operator of a landfill may elect to initiate corrective action at any time; however, prior to such initiation, the appropriate groundwater protection standards for all Table 3.1 constituents shall be established consistent with 9VAC20-81-250 A 6.

B. The director may require periodic progress reports when a corrective action program is required but not yet implemented. At any time during the corrective action process, the owner or operator may elect to pursue, or the director can determine that, interim measures as defined under subsection F of this section are required in accordance with subdivision E 3 of this section.

C. Characterization and assessment requirements.

1. Upon notifying the department that one or more of the constituents listed in Table 3.1 Column B has been detected at a statistically significant level exceeding the groundwater protection standards, the owner or operator shall, unless department approval of an Alternate Source Demonstration has been received as noted under subdivision 9VAC20-81-250 B 3 f (3) (a) (ii) or 9VAC20-81-250 C 3 c (3) (a) (ii):

a. Characterization. Within 90 days, install additional monitoring wells as necessary including the installation of at least one additional monitoring well at the facility boundary in the direction of contaminant migration sufficient to define the vertical and horizontal extent of the release of constituents at statistically significant levels exceeding the groundwater protection standards.

b. Notification. Notify all persons who own the land or reside on the land that directly overlies any part of the release if contaminants have migrated offsite as indicated by the results of sampling of the characterization wells installed under subdivision 1 a of this subsection within 15 days of completion of the characterization sampling and analysis efforts.

c. Assessment. Within 90 days, initiate an assessment of corrective measures or a proposal for presumptive remedy.

d. Financial assurance. Within 120 days, provide additional financial assurance in the amount of \$1 million to the department using the mechanisms required in 9VAC20-70-140 of the Financial Assurance Requirements for Solid Waste Disposal, Transfer, and Treatment Facilities.

e. Public meeting. Prior to submitting the document required under subdivision 1 f of this subsection, schedule and hold a public meeting to discuss the draft results of the corrective measures assessment or the proposal for presumptive remedy, prior to the final selection of remedy. The meeting shall be held to the extent practicable in the vicinity of the landfill.

The process to be followed for scheduling and holding the public hearing is described under subdivision 4 of this subsection.

f. Submission requirements. Within 180 days, submit the completed assessment of corrective measures defined under subdivision 3 of this subsection, or the proposal for presumptive remedies defined under subdivision 2 of this subsection, including any responses to public comments received.

g. Director allowance. The submission timeframe noted in subdivision 1 f of this subsection may be extended by the director for good cause upon request of the owner or operator.

2. Presumptive remedy allowance.

a. Applicability. To expedite corrective action, in lieu of an analysis meeting the requirements of subdivision 3 of this subsection, the owner or operator of any facility monitoring groundwater in accordance with 9VAC20-81-250 C may propose a presumptive remedy for the landfill.

b. Options. The presumptive remedy for solid waste landfills shall be limited to one or more of the following:

- (1) Containment of the landfill mass, including an impermeable cap;
- (2) Control of the landfill leachate;
- (3) Control of the migration of contaminated groundwater;
- (4) Collection and treatment of landfill gas; and
- (5) Reduction of saturation of the landfill mass.

Containment may be selected as a sole or partial remedy until a determination is made under subdivision F 1 of this section that another remedy shall be employed to meet the requirements of subdivision G 1 of this section concerning remediation completion. Upon recognition that presumptive remedies may not be able to achieve the groundwater protection standards, an assessment of corrective measures shall be initiated within 90 days.

c. Restrictions. Presumptive remedies are not applicable to:

- (1) Landfills monitoring groundwater under the Federal Subtitle D equivalent program defined under 9VAC20-81-250 B when the use of the presumptive remedy will be the sole remedy applied to the groundwater release; or
- (2) Landfills that may monitor groundwater under 9VAC20-81-250 C but that exhibit contamination beyond facility boundaries unless the proposed presumptive remedy option under subdivision 2 b of this subsection can be demonstrated to show it will address the reduction of contamination already present beyond the facility boundary, and the demonstration is approved by the department.

d. Submission requirements. Owner or operators who wish to propose use of the presumptive remedy allowance shall submit with the proposal, signed by a qualified groundwater professional, an

- (1) Assessment of risks resulting from the contamination at the disposal unit boundary and at the facility boundary;
- (2) Evaluation of the current trends in groundwater quality data with respect to the established groundwater protection standards; and

(3) Anticipated schedule for initiating and completing presumptive remedy-based remedial activities.

e. Implementation. Upon conducting a public meeting as required under subdivision 4 of this subsection, submitting a corrective action monitoring plan meeting subdivision D 1 of this section, and amending the landfill permit in accordance with 9VAC20-81-600 F 2, the owner or operator may proceed with the implementation of the remedy in accordance with subdivision E 1 of this section.

f. Evaluation and response. The owner or operator shall provide an evaluation of the performance of the implemented presumptive remedy every three years, unless an alternate schedule is approved by the Director, in a Corrective Action Site Evaluation report containing, at a minimum, the following information:

(a) A description of how the presumptive remedy is performing with respect to the conditions in subdivision H 1 of this section;

(b) Current and historical groundwater data and analysis;

(c) An evaluation of the changes seen in groundwater contamination after the implementation of the remedy and a projection of when the conditions in subdivision H 1 of this section will be achieved; and

(d) The progress toward achieving the schedule required in subdivision C 2 d (3) of this section.

3. Assessment of corrective measures.

a. Purpose. The assessment shall include an analysis of the effectiveness of several potential corrective measures in meeting all of the requirements and objectives of the remedy as described under this subsection, addressing at least the following:

(1) The performance, reliability, implementation ease, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedies.

b. Requirements. As part of the assessment of corrective measures submitted to the department for review, the owner or operator must demonstrate that one or more possible groundwater remedy has been evaluated for potential application on site. These remedies may include a specific technology or combination of technologies that achieve or may achieve the standards for remedies specified in subdivision 3 c (1) of this subsection given appropriate consideration of the factors specified in subsection D 1 a of this section.

c. Selection of remedy. As part of submission of the assessment of corrective measures document, the owner or operator shall select a remedy that, at a minimum, meets the standards listed in subdivision H 1 of this section.

(1) The selected remedies to be included in the corrective action plan shall:

(a) Be protective of human health and the environment;

(b) Attain the groundwater protection standard as specified pursuant to 9VAC20-81-250 A 6;

(c) Control the sources of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of solid waste constituents into the environment that may pose a threat to human health or the environment; and

(d) Comply with standards for management of wastes.

d. Evaluation and response. The department shall review the assessment of corrective measures to evaluate the proposed remedy and may require revisions to the assessment. If the assessment is approved without revision, the department will notify the owner or operator to prepare a written corrective action plan based on the proposed remedy and such plan will be submitted within 180 days of the department's notification of approval of the assessment of corrective measures.

4. Public meeting process. As part of the public meeting process completed prior to the submission of a proposal for presumptive remedy or assessment of corrective measures:

a. Newspaper notice. The owner or operator must publish a notice once a week for two consecutive weeks in a major local newspaper of general circulation inviting public comment on the results of the corrective measures assessment or proposal for presumptive remedy as applicable. The notice shall include:

(1) The name of the landfill, its location, and the date, time, and place for the public meeting, and the beginning and ending dates for the 30-day comment period. The public meeting shall be held at a time convenient to the public. The comment period will begin on the date the owner or operator publishes the notice in the local newspaper;

(2) The name, telephone, and address of the owner's or operator's representative who can be contacted by the interested persons to answer questions or where comments shall be sent;

(3) Location where copies of the documentation to be submitted to the department in support of the corrective measures assessment or proposal of presumptive remedy can be viewed and copied prior to the meeting;

(4) A statement indicating that the need to perform the corrective measures assessment or presumptive remedy is a result of a statistically significant increase in one or more groundwater protection standards; and

(5) A statement that the purpose of the public meeting is to acquaint the public with the technical aspects of the proposal, describe how the requirements of these regulations will be met, identify issues of concern, facilitate communication, and establish a dialogue between the permittee and persons who may be affected by the landfill.

b. Document review. The owner or operator shall place a copy of the report and supporting documentation in a location accessible to the public during the public comment period in the vicinity of the proposed landfill.

c. Meeting timeframe. The owner or operator shall hold a public meeting within a timeframe that allows for the submission of a completed assessment of corrective measures or presumptive remedy within 180 days of notifying the department of a groundwater protection standard exceedance or as

granted under subdivision 1 g of this subsection. The meeting must be scheduled and held:

- (1) No earlier than 15 days after the publication of the notice; and
- (2) No later than seven days before the close of the 30-day comment period.

D. Corrective action plan and monitoring plan.

1. The owner or operator shall submit to the department a Corrective Action Plan (CAP) and related Corrective Action Monitoring Plan (CAMP) consistent with the findings as presented in the assessment of corrective measures required under subdivision C 3 of this section, or proposal for presumptive remedy described under subdivision C 2 of this section.

a. Requirements. In preparing a proposed corrective action plan, the owner or operator will consider the following evaluation factors:

(1) The long-term and short-term effectiveness and protectiveness of the potential remedies, along with the degree of certainty that the remedy will prove successful based on consideration of the following:

- (a) Magnitude of reduction of existing risks;
- (b) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;
- (c) The type and degree of long-term management required, including monitoring, operation, and maintenance;
- (d) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment;
- (e) Time until full protection is achieved;
- (f) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment;
- (g) Long-term reliability of the engineering and institutional controls; and
- (h) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

- (a) The extent to which containment practices will reduce further releases;
- (b) The extent to which treatment technologies may be used;
- (c) Magnitude of reduction of existing risks; and
- (d) Time until full protection is achieved.

(3) The ease or difficulty of implementing a potential remedy based on consideration of the following types of factors:

- (a) Degree of difficulty associated with constructing the technology;
- (b) Expected operational reliability of the technologies;
- (c) Need to coordinate with and obtain necessary approvals and permits from other agencies;
- (d) Availability of necessary equipment and specialists; and

(e) Available capacity and location of needed treatment, storage, and disposal services.

(4) Practicable capability of the owner or operator, including a consideration of the technical and economic capability. At a minimum the owner or operator must consider capital costs, operation and maintenance costs, net present value of capital and operation and maintenance costs, and potential future remediation costs.

(5) Ensure that all solid wastes that are managed while undergoing corrective action or an interim measure shall be managed in a manner:

(a) That is protective of human health and the environment; and

(b) That complies with all applicable federal and Virginia requirements.

(6) The degree to which community concerns raised as the result of the public meeting required by subdivision C 4 of this section are addressed by the potential remedy.

b. Implementation and completion timeframes. The owner or operator shall specify as part of the selected remedy a schedule for initiating and completing remedial activities. Such a schedule shall require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in this section. The owner or operator shall consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under 9VAC20-81-250 A 6 and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer including:

(a) Current and future uses;

(b) Proximity and withdrawal rates of users;

(c) Groundwater quantity and quality;

(d) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to the waste constituents;

(e) The hydrological characteristics of the landfill and surrounding land;

(f) Groundwater removal and treatment costs; and

(g) The cost and availability of alternate water supplies;

(7) Practical capability of the owner or operator;

(8) Timeframes for periodic progress reports during design, construction, operation, and maintenance. Items to consider when preparing the reports include but are not limited to:

(a) Progress of remedy implementation;

- (b) Results of monitoring and sampling activities;
 - (c) Progress in meeting cleanup standards;
 - (d) Descriptions of remediation activities;
 - (e) Problems encountered during the reporting period and actions taken to resolve problems;
 - (f) Work for next reporting period;
 - (g) Copies of laboratory reports including drilling logs, QA/QC documentation, and field data; and
 - (9) Other relevant factors.
- c. Corrective action monitoring program. Any groundwater monitoring program to be employed during the corrective action process shall:
- (1) At a minimum, meet the requirements of the applicable groundwater monitoring program described under 9VAC20-81-250 B 3 or C 3;
 - (2) Determine the horizontal and vertical extent of the plume of contamination for constituents at statistically significant levels exceeding background concentrations;
 - (3) Can be used to demonstrate the effectiveness of the implemented corrective action remedy; and
 - (4) Demonstrates compliance with the groundwater protection standard established under 9VAC20-81-250 A 6.
2. The proposed corrective action plan shall be submitted to the director for approval. Prior to rendering his approval, the director may:
- a. Request an evaluation of one or more alternative remedies;
 - b. Request technical modification of the monitoring program;
 - c. Request a change in the time schedule; or
 - d. Determine that the remediation of the release of Table 3.1 constituents is not necessary, if the owner or operator demonstrates to the satisfaction of the director that:
 - (1) The groundwater is additionally contaminated by substances that have originated from a source other than the landfill in a demonstration meeting the requirements of 9VAC20-81-250 A 5 and those substances are present in concentrations such that cleanup of the release from the landfill would provide no significant reduction in risk to actual or potential receptors;
 - (2) The constituent is present in groundwater that is not currently or reasonably expected to be a source of drinking water and not hydraulically connected with waters to which the constituents are migrating or are likely to migrate in a concentration that would exceed the groundwater protection standards established;
 - (3) Remediation of the release is technically impracticable; or
 - (4) Remediation results in unacceptable cross-media impacts.
3. A determination by the director pursuant to subdivision 2 d of this subsection shall not affect the authority of the state to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are

technically practicable and significantly reduce threats to human health or the environment.

4. After an evaluation of the proposed or revised plan, the director will:

- a. Approve the proposed corrective action plan as written;
- b. Approve the proposed corrective action plan as modified by the owner or operator;
- c. Proceed with the permit amendment process in accordance with 9VAC20-81-600 F 2; or
- d. Disapprove the proposed corrective action plan and undertake appropriate containment or clean up actions in accordance with § 10.1-1402 (18) of the Virginia Waste Management Act.

E. Remedy implementation. Upon completion of the permit amendment action described under subdivision D 4 c of this section, the owner or operator shall:

1. Monitoring program. Implement a corrective action groundwater monitoring program meeting the requirements of subdivision D 1 c of this section;
2. Remedy. Implement the remedy described in the Corrective Action Plan and the Permit as amended under subdivision D 4 c of this section; and
3. Interim measures. Take any interim measures necessary to ensure the protection of human health and the environment as described in subsection F of this section.

F. Interim measures.

1. To the greatest extent practicable, interim measures shall be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to meeting the groundwater protection standard.
2. Should the director require interim measures pursuant to this section, the director will notify the owner or operator of the necessary actions required. Such actions will be implemented as soon as practicable in accordance with a schedule as specified by the director.
3. The following factors shall be considered in determining whether interim measures are necessary:
 - a. Timeframes. Time required to develop or implement a final remedy;
 - b. Exposure. Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;
 - c. Drinking water. Actual or potential contamination of drinking water supplies;
 - d. Resource degradation. Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
 - e. Migration potential. Weather conditions that may cause the constituents to migrate or be released;
 - f. Accident. Risks of fire or explosion, or potential for exposure to constituents as a result of an accident or failure of a container or handling system; and
 - g. Other. Situations including the presence of wastes or other contaminants that may pose threats to human health, sensitive ecosystems, and the environment.

G. Remedy performance.

1. The owner or operator shall provide an evaluation of the performance of the remedy consistent with the timeframes established in the permit and present the

findings in a Corrective Action Site Evaluation report. The evaluation shall describe the progress toward achieving the groundwater protection standards since implementation of the remedy.

2. An owner or operator or the director may determine, based on information developed after implementation of the remedy or other information contained in the evaluation, that compliance with requirements of subdivision H 1 of this section are not being achieved through the remedy selected. In such cases, the owner or operator shall implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under subdivision G 3 of this section.

3. If the owner or operator determines that groundwater protection standards cannot be practically achieved with any currently available methods, the owner or operator shall, within 90 days of recognizing that condition:

a. Submit a report, certified by a qualified groundwater scientist, for director approval, that demonstrates that compliance with groundwater protection standards established under 9VAC20-81-250 A 6 cannot be practically achieved with any currently available groundwater remedial methods;

b. Upon receiving director approval under subdivision 2 a of this subsection, implement alternate measures to control exposure of humans or the environment to residual contamination that will remain as a result of termination of remedial actions, as necessary to protect human health and the environment;

c. Implement alternate measures for removal or decontamination of any remediation-related equipment, units, devices, or structures that are:

(1) Technically practicable; and

(2) Consistent with the overall objective of the remedy; and

d. At least 14 days prior to implementing the alternate measures, Submit a request for approval to the director describing and justifying the alternate measures to be applied.

H. Remedy completion.

1. The groundwater remedy implemented under corrective action shall be considered complete when:

a. The owner or operator complies with the groundwater protection standards at all points within the plume of contamination that lie at or beyond the disposal unit boundary by demonstrating that no Table 3.1 Column B constituents have exceeded groundwater protection standards for a period of three consecutive years using the appropriate statistical procedures and performance standards as described under 9VAC20-81-250 D; and

b. All other actions required as part of the remedy have been satisfied or completed, and the owner or operator obtains the certification required under subdivision H 2 of this section.

2. Upon completion of the remedy, the owner or operator shall notify the director within 14 days by submitting a certification that the remedy has been completed in compliance with the requirements of the Corrective Action Plan and the permit as amended under subdivision D 4 c of this section.

3. The certification shall be signed by the owner or operator and by a qualified groundwater scientist, and shall include all data relevant to the demonstration of a successful remedy completion.
4. If the director, based on the review of information presented under subdivision H 3 of this section, determines that:
 - a. The corrective action remedy has been completed in accordance with the requirements of the Corrective Action Plan, the permit as amended, and subdivision H 1 of this section, the director will release the owner or operator from the requirements for financial assurance for corrective action under 9VAC20-70; or
 - b. The remedy has not yet achieved completion, the owner or operator shall remain in corrective action and meet the financial assurance requirements until such time as a successful demonstration and certification can be made.

Part IV

Other Solid Waste Management Facility Standards:

Compost Facilities; Solid Waste Transfer Stations; Centralized Waste Treatment Facilities; Materials Recovery Facilities; Waste to Energy; Incineration Facilities; Surface Impoundments and Lagoons; Waste Piles; Remediation Waste Management Units; Landfill Mining; Miscellaneous Units; and Exempt Management Facilities

9VAC20-81-300. General.

A. Any person who designs, constructs, or operates any solid waste treatment or storage facility not otherwise exempt under 9VAC20-81-35 D shall comply with the requirements of this part. In addition, this part sets forth conditions that yard waste composting facilities must meet to maintain their exempt status, where applicable, under 9VAC20-81-95 D 6. Further, all applications pursuant to these standards shall demonstrate specific means proposed for compliance with requirements set forth in this part.

B. All facilities, except exempted facilities, shall be maintained and operated in accordance with the permit issued or permit-by-rule status pursuant to this regulation. All facilities shall be maintained and operated in accordance with the approved design and intended use of the facility.

C. Hazardous wastes shall not be disposed or managed in facilities subject to this regulation unless specified in the permit or by specific approval of the executive director.

D. Solid waste management facilities regulated under this part that place solid wastes or residues on site for disposal, or leave such wastes or residues in place after closure, are subject to the provisions of Part III (9VAC20-81-100 et seq.) of this chapter, including:

1. Groundwater monitoring requirements in 9VAC20-81-250;
2. Closure and postclosure care requirements in 9VAC20-81-160 and 9VAC20-81-170; and
3. Permitting requirements of Part V (9VAC20-81-400 et seq.) of this chapter.

E. All other facilities shall close in accordance with the closure plan prepared per the requirements described in this part and 9VAC20-81-480, as applicable.

F. Control program for unauthorized waste. Facilities managing solid waste per activities exempted under the provisions of 9VAC20-81-95 are not required to implement the control program for unauthorized waste as provided in this section.

1. Solid waste treatment or storage facilities regulated under this part shall implement a control program for unauthorized waste in accordance with the following provisions. The owner or operator of the facility shall:

- a. Place a written description of the control program for unauthorized waste in the facility's operating manual;
- b. Institute a control program (including measures such as signs at all maintained access points indicating hours of operation and the types of solid waste accepted and not accepted, monitoring, alternate collection programs, passage of local laws, etc.) to assure that only solid waste authorized by the department to be managed at the solid waste management facility is being managed there; and
- c. Develop and implement a program to teach the solid waste management facility's staff to recognize, remove, and report receipt of solid waste not

authorized by the department to be managed at the solid waste management facilities.

2. If unauthorized waste is observed in the waste delivered to the facility prior to unloading, the owner or operator may refuse to accept the waste. If the unauthorized waste is observed in the waste delivered to the facility, the owner or operator shall segregate it, notify the generator, document the incident in the operating record, make necessary arrangements to have the material managed in accordance with applicable federal and state laws, and notify the department of the incident to include the means of proper handling. If the unauthorized waste is accepted, the owner or operator shall remove it, segregate it, and provide to the department a record identifying that waste and its final disposition. Any unauthorized waste accepted by the owner or operator shall be managed in accordance with applicable federal or state laws and regulations. Unauthorized waste that has been segregated shall be adequately secured and contained to prevent leakage or contamination to the environment. The solid waste management facility owner or operator shall have the unauthorized waste removed or properly managed as soon as practicable, but not to exceed 90 days after discovery. Removal shall be by a person authorized to transport such waste to a waste management facility approved to receive it for treatment, disposal, or transfer.

3. Owners or operators of waste to energy or incinerator facilities receiving waste generated outside of Virginia shall also comply with the increased random inspection provisions in 9VAC20-81-340 E 3.

G. Solid waste management facilities regulated under this part that store waste tires shall also adhere to the requirements of 9VAC20-81-640 for the waste tire storage.

9VAC20-81-310. Applicability.

A. Solid waste compost facilities.

1. The standards in this part shall apply to owners and operators of facilities producing compost from municipal solid waste/refuse or combinations of municipal solid waste/refuse with animal manures.

a. Composting facilities that employ the enclosed vessel method are referred to as Type A (confined) compost facilities. Facilities that employ the windrow or aerated static pile method are referred to as Type B compost facilities. The only composting processes that may be employed are those with prior operational performance in the United States. Any other proposed composting process shall conform to the standards contained in 9VAC20-81-395 and will require an experimental solid waste management facility permit.

b. Use of solid waste containing hazardous waste, regulated medical waste, or nonbiodegradable waste is prohibited.

2. The standards contained in this part are not applicable to composting exempt under 9VAC20-81-95.

3. The feedstocks for composting are classified on the basis of the type of waste used in the composting process. The categories of feedstocks are as follows:

a. Category I - Plant or plant-derived preconsumer materials such as:

(1) Agriculture crop residues including, but not limited to, harvesting residuals, straw, and cornstalks;

(2) Livestock feed including, but not limited to, hay, grain, silage, cottonseed meal, soybean meal;

(3) Nonfood agricultural processing waste including, but not limited to, cotton gin trash, wool carding residue, field corn cobs;

(4) Source-separated preconsumer food wastes including but not limited to wholesale and retail market residuals (e.g., overripe, damaged, or otherwise rejected fruit or vegetables, food preparation wastes including prepared but unserved foods) and institutional kitchen culls;

(5) Food processing wastes including culls, peelings, hulls, stems, pits, seed, pulp, shucks, nut shells, apple pomace, corn cobs, cranberry filter cake, olive husks, potato tops, cocoa shells, fruit and vegetable processing waste, rejected products, and bakery wastes;

(6) Source-separated clean waste paper;

(7) Vegetative waste; and

(8) Yard waste.

b. Category II - Animal-derived waste material such as:

(1) Dairy processing wastes including but not limited to spoiled milk, cheese, curd, and yogurt.

(2) Fish processing wastes including but not limited to eggs, fish gurry and racks, clam bellies, fish shells, fish processing sludge, fish breeding crumbs, mussel, crab, lobster, and shrimp wastes.

c. Category III - Animal and postconsumer food wastes with pathogen potential such as:

(1) Source-separated wastes including but not limited to restaurant waste, institutional kitchen wastes, plate scrapings;

(2) Animal manures including but not limited to spoiled stable straw bedding, livestock feedlot, holding pen and cage scrapings, dairy manure semi-solids, poultry litter and manure; and

(3) Rendered animals.

d. Category IV - Other wastes such as:

(1) Nonrendered animal meat waste including but not limited to animal carcasses, slaughterhouse waste, paunch manure;

(2) Mixed nonsource separated organic wastes including but not limited to municipal solid waste; and

(3) Industrial sludge.

B. Solid waste transfer stations. The standards in this part shall apply to owners and operators of solid waste transfer stations.

C. Centralized waste treatment facilities. The standards in this part shall apply to owners and operators of solid waste management facilities who operate a treatment system to solidify non-hazardous solid waste to meet the disposal criteria of 9VAC20-81-140 where the waste is generated offsite, and such treatment system must have no discharge. The requirements of this section shall not apply to solidification operations at active landfills that are authorized in the landfill's solid waste permit.

D. Materials recovery facilities.

1. The standards in this part shall apply to owners and operators of solid waste management facilities that operate to reclaim solid waste.

2. The regulations of this part do not apply to:

- a. The landfill gas recovery systems operated at active and closed solid waste disposal facilities that are regulated under 9VAC20-81-200;
- b. The storage and treatment facilities associated with the management of materials conditionally exempt from this chapter on the basis of 9VAC20-81-95 F;
- c. The facilities that use materials in a manner that constitutes disposal that are regulated under Part VI (9VAC20-81-610 et seq.) of this chapter; or
- d. The disposal of residues from the materials recovery facilities that is regulated under Part III (9VAC20-81-100 et seq.) of this chapter.

E. Waste to energy and incineration facilities.

1. The standards in this part shall apply to owners and operators of solid waste and process residue storage and handling facilities associated with the energy recovery from or incineration of solid wastes.

2. The regulations of this part do not apply to:

- a. The design and operation of the combustor units regulated by the Air Pollution Control Board; or
- b. The disposal of residues from the waste to energy or incineration facilities that is regulated under Part III (9VAC20-81-100 et seq.) of this chapter.

F. Surface impoundments and lagoons.

1. Lagoons and surface impoundments are regulated under State Water Control Law. During the operating life of these facilities, this chapter does not apply. If the operator intends to close such a facility by burial of sludges and residue in place, this chapter shall not apply where the regulating agency establishes the closure requirements in accordance with water pollution control regulations. The standards in this section shall apply to owners and operators of lagoons and surface impoundments only if new wastes, not contained in the lagoon or impoundment, are proposed to be disposed with the residue. In those cases, the operation and closure of the facility constitutes construction and operation of a landfill and must be accomplished as specified in Part III (9VAC20-81-100 et seq.) of this chapter.

2. Leachate lagoons are regulated under Part III (9VAC20-81-100 et seq.) of this chapter and are subject to the requirements for liners in 9VAC20-81-210 C.

G. Waste piles.

1. The standards in this part shall apply to owners and operators of facilities that store or treat nonputrescible solid waste in piles.

2. Owners or operators of waste piles that will be closed with wastes left in place are subject to regulations contained in Part III (9VAC20-81-100 et seq.) of this chapter.

3. This part does not apply if materials will be actively composted according to all the requirements for compost facilities in Part IV (9VAC20-81-300 et seq.) of this chapter.

4. The regulations in this part do not apply to the management of industrial co-products in piles. A material shall be considered an industrial co-product if a demonstration can be made consistent with 9VAC20-81-95 or 9VAC20-81-97 that the material is not a solid waste.

5. The regulations in this part do not apply to active logging operations subject to regulation under the provisions of §§ 10.1-1181.1 through 10.1-1181.2 of the Code of Virginia.

9VAC20-81-320. Siting requirements.

The siting of all compost facilities, solid waste transfer stations, centralized waste treatment facilities, materials recovery facilities, waste to energy and incineration facilities, and waste piles shall be governed by the standards as set forth in this section.

A. Facilities shall be adjacent to or have direct access to roads that are paved or surfaced and capable of withstanding anticipated load limits. Solid waste management facilities storing or treating solid waste in piles such as but not limited to compost facilities and waste piles may also have direct access to gravel roads.

B. Facilities shall not be sited or constructed in areas subject to base floods. For materials recovery facilities, this siting prohibition does not apply to facilities recovering materials from industrial wastewater received from offsite.

C. No facility activity shall be closer than:

1. 50 feet to its property boundary;
2. 200 feet to any residence, a health care facility, school, recreational park area, or similar type public institution;
3. 50 feet to any perennial stream or river. For materials recovery facilities, this siting prohibition does not apply to those facilities recovering materials from industrial wastewater received from offsite; and
4. For facilities treating or storing solid waste in piles, no closer than 50 feet to any wetland.

D. Sites shall provide room to minimize traffic congestion and allow for safe operation.

E. In addition to subsections A through D of this section, for waste piles, unless the waste piles are located inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated, such waste piles shall be provided with an adequate area to allow for proper management in accordance with 9VAC20-81-330 F and 9VAC20-81-340 F.

F. In addition to subsections A through D of this section, for compost facilities:

1. Acceptable sites must have area and terrain to allow for proper management of run-on, run-off, and leachate, and to allow for a buffer zone with the minimum size of 100 feet between the property boundary and the actual composting activity.
2. Type B facilities shall not be located in areas that are geologically unstable or where the site topography is heavily dissected.

9VAC20-81-330. Design and construction requirements.

The design and construction of all compost facilities, solid waste transfer stations, centralized waste treatment facilities, materials recovery facilities, waste to energy and incineration facilities, and waste piles shall be governed by the standards as set forth in this section.

A. Compost facilities.

1. For facilities that will compost only Category I feedstocks:

- a. A handling area and equipment shall be provided to segregate the Category I waste from noncompostable components and to store such components in appropriate containers prior to proper management and disposal.
 - b. If the facility is located in any area where the seasonal high water table lies within two feet of the ground surface, the composting and handling areas shall be hard-surfaced and diked or bermed to prevent run-on, collect runoff, and provided with a drainage system to route the collected runoff to a treatment, disposal or holding facility, discharged under a VPDES permit, or recirculated within the composting process.
 - c. Engineering controls shall be incorporated into design of facilities located on sites with:
 - (1) Springs, seeps, and other groundwater intrusions;
 - (2) Gas, water, or sewage lines under the active areas; or
 - (3) Electrical transmission lines above or below the active areas.
 - d. Areas used for mixing, composting, curing, screening, and storing shall be graded to prevent run-on, collect runoff, and provided with a drainage system to route the collected runoff to a treatment, disposal or holding facility, discharged under a VPDES permit, or recirculated within the composting process.
 - e. Roads serving the unloading, handling, composting, and storage areas shall be usable under all weather conditions.
2. Facilities for the composting of Category II, III, and IV feedstocks, including those that will mix these feedstocks with Category I feedstocks, shall be provided with:
- a. Covered areas for receiving, segregation, and grading of the waste shall be provided to segregate the waste from noncompostable components and to store such components in properly constructed containers prior to proper management and disposal.
 - b. Areas used for mixing, composting, curing, screening, and storing shall be graded to prevent run-on, collect runoff, and provided with a drainage system to route the collected runoff to a treatment, disposal or holding facility, discharged under a VPDES permit, or recirculated within the composting process.
 - c. If the facility is located in any area where the seasonal high water table lies within two feet of the ground surface, the composting and handling areas shall be hard-surfaced and diked or bermed to prevent run-on, collect runoff, and provided with a drainage system to route the collected runoff to a treatment, disposal or holding facility, discharged under a VPDES permit, or recirculated within the composting process.
 - d. Where any Category IV feedstocks are received, or where more than 1,000 total tons/quarter of Category II and III feedstocks are received, all receiving, mixing, composting, curing, screening, and storing operations shall be provided with one of the following:
 - (1) An asphalt or concrete area that drains directly to a wastewater storage, treatment, or disposal facility;

(2) An asphalt, or concrete, and diked or bermed area to prevent entry of run-on or escape of run-off, leachate, or other liquids, and a sump with either a gravity discharge or an adequately sized pump located at the low point of the hard-surfaced area to convey liquids to a wastewater treatment, disposal or holding facility, discharged under a VPDES permit, or recirculated within the composting process;

(3) A lime stabilized area may be substituted for the asphalt or concrete specified under subdivision A 2 c (2) of this subsection. The lime stabilized clay/soil area must be a minimum of six inches thick and have a lab-tested permeability of 1×10^{-7} cm/sec; or

(4) A 12" compacted gravel pad underlain by a continuous high density polyethylene (HDPE) liner of a minimum 60-mil thickness and equipped with leachate collection above the liner and leak detection below the liner.

e. Area and equipment shall be provided to segregate nonbiodegradable or otherwise undesirable components from the municipal solid waste to be processed.

f. For Type B facilities, engineering controls shall be incorporated into design of facilities located on sites with:

(1) Springs, seeps, and other groundwater intrusions;

(2) Gas, water, or sewage lines under the active areas; or

(3) Electrical transmission lines above or below the active areas.

g. Roads serving the unloading, composting, and storage areas shall be of all-weather construction.

h. Auxiliary power, standby equipment, or contingency arrangements shall be required to ensure continuity of composting operations.

i. For uncovered sites, calculations for sizing of surface water control features will be based on a rainfall intensity of one hour duration and a 10-year return period.

B. Solid waste transfer stations.

1. An all-weather road suitable for loaded collection vehicles shall be provided from the entrance gate to the unloading, receiving, or tipping area.

2. The floors in the unloading, receiving, or tipping areas shall be constructed of easily cleanable materials, provided with a water supply for transfer area cleaning purposes, and equipped with drains or pumps, or equivalent means to facilitate the removal of wastewater to proper storage or disposal.

3. Truck wheel curbs or other safety facilities shall be provided to prevent backing or falling into a pit if one is used for tipping.

4. The transfer unloading, receiving, tipping, and storage structures, buildings, and ramps shall be of a material that can be easily cleaned.

5. Onsite queuing capacity shall be provided for the expected traffic so that the waiting collection vehicles do not back up onto the public road.

6. Portions of the transfer station used solely for storage of household hazardous waste shall have a containment system designed in accordance with 40 CFR 267.173, as amended. The requirements of this section do not apply to household hazardous waste packaged in U.S. Department of Transportation-approved shipping containers and removed from the site within 10 days from the date of collection.

7. If the transfer station is used to store waste materials, storage units shall be designed to reduce the potential for fires and migration of vectors, and to prevent escape of wastes, wash waters, odors, dust, and litter from the facility.

C. Centralized waste treatment facilities.

1. A centralized waste treatment facility shall be so designed to reduce the potential of elements that may degrade health or the environment from crossing the facility boundaries. Such elements include fire, vectors, wash water, odor, and litter.

2. An all-weather road suitable for loaded delivery vehicles shall be provided from the entrance gate to the unloading area.

3. Mixing tanks shall be located inside a building or have covers provided that can be deployed rapidly under the threat of inclement weather.

4. Tanks constructed in the ground shall be placed a minimum of two feet above the seasonal high ground-water table and a minimum of two feet vertical separation shall be maintained between bedrock and the lowest point of the tank.

5. Tanks constructed in the ground shall provide secondary containment and have a witness zone to immediately detect leakage. Leaks shall be repaired immediately and the department shall be notified within 24 hours.

6. Tanks constructed above ground shall allow easy access beneath the tank to allow quick leak detection and cleaning. Leaks shall be repaired immediately and the department shall be notified within 24 hours.

7. Mixing tanks shall be underlain and/or surrounded by an apron consisting of hard impermeable surface that is easily cleanable and prevent runoff of any spills.

8. Internal storage areas for processed waste shall be provided to insure an environmentally sound operation and afford space to allow for proper processing of maximum anticipated daily incoming solid waste.

9. Facility shall be designed in a manner that will prevent the migration of odors and dust offsite. The facility must meet all applicable requirements of the regulations of the Air Pollution Control Board where air releases are contemplated.

10. Onsite queuing capacity shall be provided for the expected traffic so that the waiting delivery vehicles do not back up onto the public road.

11. Facilities shall be designed with perimeter security fencing, or natural barriers, and gate controls to prevent unauthorized access to the site.

D. Materials recovery facilities.

1. A materials recovery facility shall be so designed to reduce the potential of elements that may degrade health or the environment from crossing the facility boundaries. Such elements include fire, vectors, wash water, odor, and litter.

2. An all-weather road suitable for loaded delivery vehicles shall be provided from the entrance gate to the unloading area.

3. The unloading, receiving, or tipping areas shall be constructed of impervious materials, provided with a water supply for storage and transfer area cleaning purposes, and equipped with drains or pumps, or equivalent means to facilitate the removal of wastewater to proper storage or disposal.

4. Truck wheel curbs or other safety facilities shall be provided to prevent backing or falling into a pit if one is used for tipping.

5. The unloading, tipping, receiving, and storage structures, buildings, and ramps shall be of material that can be easily cleaned.
6. Internal storage areas for unprocessed incoming solid waste will be provided to ensure an environmentally sound operation and afford space to allow for proper processing of maximum anticipated daily incoming solid waste.
7. Facility shall be designed in a manner that will prevent the migration of odors and dust offsite. The facility must meet all applicable requirements of the regulations of the Air Pollution Control Board where air releases are contemplated.
8. Onsite queuing capacity shall be provided for the expected traffic so that the waiting delivery vehicles do not back up onto the public road.
9. Fire alarm and protection systems capable of detecting, controlling, and extinguishing any and all fires shall be provided.
10. Facilities shall be designed with perimeter security fencing, or natural barriers, and gate controls to prevent unauthorized access to the site.
11. The owner or operator of a material recovery facility engaged in bioremediation shall design, construct, and maintain systems for application of nutrients, provision of air or oxygen, and regulation of moisture content designed to promote aerobic microbiological degradation. At a minimum the systems shall be:
 - a. Designed to be chemically resistant to any waste or leachate that may come into contact with the system;
 - b. Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste, waste cover materials, and by any equipment used in the area; and
 - c. Designed to provide operational temperatures that are favorable to the bioremediation process.
12. A design description manual will be prepared and submitted to the department describing or showing:
 - a. The process rate of the facility.
 - b. The designation of normal loading, unloading, and storage areas and their capacities;
 - c. The designation of emergency loading, unloading, storage, or other disposal capabilities to be used when the facility system downtime exceeds 24 hours;
 - d. The designation of alternate disposal areas or plans for transfer of solid wastes in the event facility downtime exceeds 72 hours;
 - e. The expected daily quantity of waste residue generation;
 - f. The proposed ultimate disposal location for all facility-generated waste residues including, but not limited to, residues and bypass material, byproducts resulting from air pollution control devices, and the proposed alternate disposal locations for any unauthorized waste types, which may have been unknowingly accepted. The schedule for securing contracts for the disposal of these waste types at the designated locations shall be provided;

- g. A descriptive statement of any materials use, reuse, or reclamation activities to be operated in conjunction with the facility, either on the incoming solid waste or the ongoing residue;
- h. Plan views showing building dimensions, building setbacks, side and rear distances between the proposed structure and other existing or proposed structures, roadways, parking areas, and site boundaries; and
- i. Interior floor plans showing the layout, profile view, and dimensions of the processing lines, interior unloading, sorting, storage, and loading areas as well as other functional areas.

E. Waste to energy and incineration facilities.

1. The solid waste and combustion residue storage and handling facilities associated with a waste to energy or incineration system shall be designed to reduce the potential of elements that may degrade health or the environment from crossing the facility boundaries. Such elements include fire, vectors, wash water, odor, and litter.
2. An all-weather road suitable for loaded delivery vehicles shall be provided from the entrance gate to the unloading, receiving, or tipping area.
3. All tipping floors, sorting pads, waste storage areas, bunkers, and pits shall be constructed of concrete or other similar quality material that will withstand heavy vehicle usage. Floor drains shall be provided in all such areas and surfaces shall be graded to facilitate wash down operations. Floor drains shall be designed to discharge wastewater into a collection system for proper disposal. In those cases where waste or residue storage pits are to be utilized, the base and sidewalls shall be designed to prevent groundwater intrusion.
4. Truck wheel curbs or other safety facilities shall be provided to prevent backing or falling into a pit if one is used for tipping.
5. The unloading, receiving, and tipping structures; buildings; and ramps shall be of material that can be easily cleaned.
6. Facilities shall be designed with internal storage area for unprocessed incoming solid waste, facility process waste residues and effluents, and recovered materials, if applicable. The design shall allow for, at a minimum, three days of storage at maximum anticipated loading rates.
7. The facility shall be designed in a manner that will prevent the migration of odors and dust offsite.
8. Onsite queuing capacity shall be provided for the expected traffic so that the waiting delivery vehicles do not back up onto the public road.
9. Fire alarm and protection systems capable of detecting, controlling, and extinguishing any and all fires shall be provided.
10. Facilities shall be designed with perimeter security fencing and gate controls to prevent unauthorized access to the site and to control the offsite escape of litter.
11. A design description manual will be prepared and submitted to the department describing or showing:
 - a. The process rate of the facility;
 - b. The designation of normal loading, unloading, and storage areas and their capacities;

- c. The designation of emergency loading, unloading, storage or other disposal capabilities to be used when the facility system downtime exceeds 24 hours;
- d. The designation of alternate disposal areas or plans for transfer of solid wastes in the event facility downtime exceeds 72 hours;
- e. The expected daily quantity of waste residue generation;
- f. The proposed ultimate disposal location for all facility-generated waste residues including, but not limited to, ash residues and bypass material, byproducts resulting from air pollution control devices, and the proposed alternate disposal locations for any unauthorized waste types, which may have been unknowingly accepted. The schedule for securing contracts for the disposal of these waste types at the designated locations shall be provided;
- g. A descriptive statement of any materials use, reuse, or reclamation activities to be operated in conjunction with the facility, either on the incoming solid waste or the ongoing residue;
- h. Plan views showing building dimensions, building setbacks, side and rear distances between the proposed structure and other existing or proposed structures, roadways, parking areas, and site boundaries; and
- i. Interior floor plans showing the layout, profile view, and dimensions of the processing lines, interior unloading, sorting, storage, and loading areas as well as other functional areas.

F. Waste piles.

1. The owner or operator of any waste pile that is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated is not subject to regulation under subdivision 2 of this subsection, provided that:

- a. Liquids or materials containing free liquids are not placed in the pile;
- b. The pile is protected from surface water run-on by the structure or in some other manner;
- c. The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting;
- d. The pile will not generate leachate through decomposition or other reactions; and
- e. The structures, buildings, and ramps shall be of concrete, brick, or other material that can be easily cleaned.

2. Exposed waste piles.

- a. Liners. A waste pile (except for an existing portion of a waste pile) shall have:

(1) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent soil or groundwater or surface water at any time during the active life (including the closure period) of the waste pile. The liner shall be:

- (a) Constructed of materials that have necessary chemical properties and strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(b) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(c) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2) A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The design and operating conditions shall ensure that the leachate depth over the liner does not exceed one foot at its lowest point. The leachate collection and removal system shall be:

(a) Constructed of materials that are (i) chemically resistant to the waste managed in the pile and the leachate expected to be generated; and (ii) of necessary strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(b) Designed and operated to function without clogging through the scheduled closure of the waste pile.

b. The owner or operator will be exempted from the requirements of subdivision 2 a of this subsection if the director finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any waste constituents into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the director will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including attenuating capacity and thickness of the liners and soils present between the pile and groundwater or surface water; and

(4) All other factors that would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water;

c. During construction or installation, liners shall be inspected by the owner's or operator's construction quality assurance personnel for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials).

d. Immediately after construction or installation.

(1) Synthetic liners shall be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(2) Soil-based liners shall be inspected for imperfections including lenses, cracks, channels, root holes, or other structural nonuniformities that may cause an increase in the hydraulic conductivity of the liner.

(3) Any imperfections in the alternate liner design approved by the director will be repaired.

e. The owner or operator shall design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25-year storm.

- f. The owner or operator shall design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.
3. Area, facilities, and equipment shall be provided to segregate undesirable components from the incoming solid waste to be processed.
4. The storage or treatment units shall be designed to prevent fires and migration of vectors, and to prevent escape of wastes, wash waters, waste decomposition odors, dust, and litter from the facility. The storage and treatment units will be designed to withstand the physical, chemical, and biological characteristics of the waste managed.

9VAC20-81-340. Operation requirements.

The operation of all compost facilities, solid waste transfer stations, centralized waste treatment facilities, materials recovery facilities, waste to energy and incineration facilities, and waste piles shall be governed by the standards as set forth in this section. Operations for these facilities will be detailed in an operations manual that shall be maintained in the operating record in accordance with 9VAC20-81-485. This operations manual will include an operations plan, an inspection plan, a health and safety plan, an unauthorized waste control plan, and an emergency contingency plan meeting the requirements of this section and 9VAC20-81-485. This manual shall be made available to the department when requested. If the applicable standards of this chapter and the facility's operations manual conflict, this chapter shall take precedence.

A. Compost facilities.

1. For facilities that will compost only Category I wastes:
 - a. Noncompostable or other undesirable solid waste shall be segregated from the material to be composted. Solid waste that is not composted, salvaged, reused, or sold must be disposed at a permitted solid waste management facility, authorized to accept the waste.
 - b. The addition of any other solid waste including but not limited to hazardous waste, regulated medical waste, construction waste, debris, demolition waste, industrial waste, or other municipal solid waste to the Category I waste received at the composting facility is prohibited, except that the materials that are excluded under 9VAC20-81-95 may be combined with Category I waste for the purpose of producing compost under the provisions of this chapter.
 - c. Access to the composting facility shall be permitted only when an attendant is on duty.
 - d. Dust, odors, and vectors shall be controlled so they do not constitute nuisances or hazards. Fugitive dust and mud deposits on main offsite roads and access roads shall be minimized at all times to limit nuisances. Dust shall be controlled to meet the requirements of Article 1 (9VAC5-40-60 et seq.) of Part II of 9VAC5-60.
 - e. The owner or operator shall prepare, implement, and enforce a safety program and a fire prevention and suppression program designed to minimize hazards.
 - f. Open burning shall be prohibited on the facility property.
 - g. Leachate or other runoff from the facility shall not be permitted to drain or discharge directly into surface waters, unless authorized by a VPDES permit.

h. Designed buffer zones shall be maintained.

2. Facilities for the composting of Category II, III, or IV feedstocks, including those that mix these categories with Category I feedstocks, shall be provided with:

a. Noncompostable or other undesirable solid waste shall be segregated from the material to be composted. Solid waste that is not composted, salvaged, reused, or sold must be disposed at a permitted solid waste management facility, authorized to accept the waste.

b. Products will continue to be considered as solid wastes until the testing indicates that they attain finished compost standards. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and shall be conducted in a manner consistent with SW-846, as amended, and other applicable standards. The minimum number of samples that shall be collected and analyzed is shown in the table below. Samples to be analyzed for metals shall be composited prior to the analysis.

Minimum Frequency of Analysis

Amount of finished compost ¹ (tons per 365 day period)	Frequency ²
Less than 320	Once per year.
Equal to or greater than 320 but less than 1,653	Once per quarter (four times per year).
Equal to or greater than 1,653 but less than 16,535	Once per 60 days (six times per year).
Equal to or greater than 16,535	Once per month (12 times per year).

¹Either the amount of finished compost applied to the land or prepared for sale or give-away for application to the land (dry weight basis).

²After the finished compost has been monitored for two years at the frequency in the above table, the facility may request that the department reduce the frequency of monitoring.

c. All finished products will be tested for compost stability using one of the methods listed below:

(1) Temperature decline to near ambient conditions when not the result of improper management of the composting process. Composting records shall indicate schedules for turning, monitoring of moisture within the required range, and mix of composting feedstocks.

(2) Reheat potential using the Dewar Compost Self-Heating Flask. The results must indicate a stable product. Temperature rise above ambient must not exceed 10°C for stable compost. Very stable compost will not exceed 20 °C above ambient.

(3) Specific oxygen uptake. To be classified as stable the product must have a specific oxygen uptake rate of less than 0.1 milligrams per gram of dry solids per hour.

(4) Solvita™ Compost Maturity Test. To be classified as stable the product must exhibit color equal or greater than six.

(5) Carbon dioxide evolution. To be classified as stable the product must not evolve more than 1,000 milligrams of carbon dioxide per liter per day.

d. In addition to testing required of this subsection, finished products produced from any Category III and IV materials will be tested for the presence of the following organisms using the methods indicated below:

(1) Parasites. The density of viable helminth ova in the finished compost shall be less than one per four grams of total solids (dry weight basis) at the time the finished compost is prepared for sale or give away in a container for application to the land. Viable helminth ova reduction shall be demonstrated by testing the finished compost once per quarter for a period of one year. After the viable helminth ova reduction has been demonstrated for the composting process, additional helminth ova testing will not be required provided the composting operating parameters and incoming waste stream are consistent with the values or ranges of values documented during the initial helminth ova reduction demonstration. If the composting parameters or incoming waste stream change a new viable helminth ova reduction demonstration is required, and

(2) Bacteria pathogens. Either the density of fecal coliform in the finished compost shall be less than 1000 Most Probable Number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the finished compost shall be less than three MPN per four grams of total solids (dry weight basis) at the time the finished compost is prepared for sale or give away in a container for application to the land.

(3) Other test methods, or facility operating standards may be used in lieu of the above parasite and pathogen testing requirements as approved by the department.

e. Metals. In addition to the testing requirements contained in this subsection, all finished products produced from Category IV materials shall be analyzed for the metals shown below. The concentration of contaminants shall not exceed the following levels:

Metal	Concentration, mg/kg dry solids
Arsenic	41
Cadmium	21
Copper	1500
Lead	300
Mercury	17
Molybdenum	54
Nickel	420
Selenium	28
Zinc	2,800

f. Designed buffer zones shall be maintained.

g. The owner or operator shall prepare an operation plan that shall include as a minimum:

(1) The description of types of wastes that will be managed at the facility. This description must properly categorize the compost feedstocks in accordance with 9VAC20-81-310 A 4. If the specific materials are not listed in that section, a discussion will be prepared that compares the materials that the facility will receive with the materials listed in the applicable feedstock category and justifies the categorization of the proposed feedstock. For each type of material an approximate C:N ratio will be provided. The expected quantity of any bulking agent or amendment will be provided (if applicable); and any expected recycle of bulking agent or compost. The plan shall include the annual solid waste input, the service area population (both present and projected if applicable), and any seasonal variations in the solid waste type and quantity;

(2) A discussion of the composting process including:

(a) For Type A compost facilities the following will be provided:

(i) A copy of the manufacturer's operating manual, and drawings and specifications of the composting unit.

(ii) A discussion of the unit's requirements for power, water supply, and wastewater removal, and the steps taken to accommodate these requirements.

(b) For Type B compost facilities the following will be provided:

(i) A description of the configuration of the composting process including compost pile sizing, and orientation, provisions for water supply, provisions for wastewater disposal, and an equipment list.

(ii) A discussion of procedures and frequency for moisture, and temperature monitoring, and aeration.

(iii) A discussion of pile formation, and feedstock proportioning and feedstock preparation;

(3) A discussion of the method and frequency of final product testing in accordance with this subsection will be provided;

(4) A schedule of operation, including the days and hours that the facility will be open, preparations before opening, and procedures followed after closing for the day;

(5) Anticipated daily traffic flow to and from the facility, including the number of trips by private or public collection vehicles;

(6) The procedure for unloading trucks (including frequency, rate, and method);

(7) A contingency plan detailing corrective or remedial action to be taken in the event of equipment breakdown; air pollution (odors); unacceptable waste delivered to the facility; spills; and undesirable conditions such as fires, dust, noise, vectors, and unusual traffic conditions;

(8) Special precautions or procedures for operation during wind, heavy rain, snow, and freezing conditions;

(9) A description of the ultimate use for the finished compost, method for removal from the site, and a plan for use or disposal of finished compost that

cannot be used in the expected manner due to poor quality or change in market conditions;

(10) A discussion of inspections in accordance with subdivision 2 h (3) of this subsection; and

(11) A discussion of records to be maintained in accordance with 9VAC20-81-350.

h. Maintenance.

(1) Facility components shall be maintained and operated in accordance with the permit and intended use of the facility.

(2) Adequate numbers, types, and sizes of properly maintained equipment shall be available at the facility during all hours of operation to prevent curtailment of operations because of equipment failure except under extraordinary conditions beyond the control of the facility's owner or operator.

(3) The facility owner or operator shall monitor and inspect the facility for malfunctions, deteriorations, operator errors, and discharges that may cause a release to the environment or a threat to human health. The facility owner or operator shall promptly remedy any deterioration or malfunction of equipment or structures or any other problems revealed by the inspections to ensure that no environmental or human health hazard develops. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(4) The amount of compost stored at the facility shall not exceed the designed storage capacity.

i. Leachate or other runoff from the facility shall not be permitted to drain or discharge directly into surface waters, unless authorized by a VPDES permit.

B. Solid waste transfer stations.

1. No uncontainerized putrescible solid waste shall remain at the transfer station at the end of the working day.

2. A written operating plan shall be prepared covering at the minimum:

a. Facility housekeeping, procedures for detection of regulated hazardous and medical wastes, onsite traffic control, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles; and/or

b. The process rate of the facility, the capacities of any waste storage areas, and the ultimate disposal location for all facility generated waste residue.

3. A written contingency plan shall be prepared for a transfer station covering operating procedures to be employed during periods of nonoperation. This plan shall set forth procedures to be employed in the event of equipment breakdown that will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities.

4. Leachate and wash water from a transfer station shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued pursuant to 9VAC25-31.

5. No regulated hazardous wastes shall be accepted for processing unless they are received under the provisions of a hazardous waste permit or they are specifically exempted by the provisions of the Virginia Hazardous Waste

Management Regulations (9VAC20-60-12 et seq.). Storage of household hazardous waste at facilities designed in accordance with 9VAC20-81-330 B6 shall be accomplished in accordance with the requirements of 40CFR261.173, as amended. Storage in such facilities may not exceed one year.

C. Centralized waste treatment facilities.

1. All incoming waste shall begin treatment at the solidification facility by the end of the working day.
2. Facilities engaged in the solidification of petroleum contaminated sludge shall perform the analyses required by 9VAC20-81-660 C.
3. A written operating plan shall be prepared covering at the minimum:
 - a. Facility housekeeping, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, and noise control.
 - b. A description of methods to determine the characteristics of the treated waste, frequency of testing and the action the facility owner or operator will take whenever the material fails to meet applicable standards.
 - c. The process rate of the facility, the capacities of any storage areas, and the ultimate disposal location(s).
 - d. For facilities engaged in the reclamation of soil, a description of the methods and frequencies of analysis of the reclaimed product shall be provided as required by 9VAC20-81-660.
4. A written contingency plan shall be prepared to establish operating procedures to be employed during periods of nonprocessing. This plan shall set forth procedures to be employed in the event of equipment breakdown that will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities. The plan will include emergency loading, unloading, storage, transfer, or other disposal capabilities to be used when the facility downtime exceeds 24 hours.
5. Leachate and wash water from a centralized waste treatment facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES Permit issued pursuant to 9VAC25-31.
6. Inspection and leak detection monitoring records shall be maintained and made available upon request for the lifetime of the treatment facility.

D. Materials recovery facilities.

1. No uncontainerized putrescible waste shall remain at the materials recovery facility at the end of the working day.
2. Facilities engaged in the reclamation of petroleum contaminated soils shall perform the analyses required by 9VAC20-81-660.
3. A written operating plan shall be prepared covering at the minimum:
 - a. Facility housekeeping, onsite traffic control, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles.
 - b. A description of methods to determine the usefulness of the recovered material, frequency of testing, and the action the facility owner or operator will take whenever the material fails the standards applicable to the recovered product and must be disposed of as waste.

c. The process rate of the facility, the capacities of any waste storage areas, the expected daily quantity of waste residue generation, and the ultimate disposal location for all facility generated waste residue.

d. For facilities engaged in the reclamation of soil, a description of the methods and frequencies of analysis of the reclaimed product shall be provided as required by 9VAC20-81-660.

e. For facilities that store waste tires, the provisions of 9VAC20-81-640 B, C, and D, as applicable.

4. A written contingency plan shall be prepared for a materials recovery facility covering operating procedures to be employed during periods of nonprocessing. This plan shall set forth procedures to be employed in the event of equipment breakdown that will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities. The plan will include emergency loading, unloading, storage, transfer, or other disposal capabilities to be used when the facility downtime exceeds 24 hours.

5. Leachate and wash water from a materials recovery facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES Permit issued pursuant to 9VAC25-31.

E. Waste to energy and incineration facilities.

1. Unprocessed incoming waste, facility process waste residues and effluents, and recovered materials, if applicable, shall be stored in bunkers, pits, bins, or similar containment vessels and shall be kept at all times at levels that prevent spillage or overflow. Any waste materials temporarily stored on the facility's tipping floor shall be stored as stated above by the end of the working day, or other time frame approved by the director.

2. A written operating plan shall be prepared covering at the minimum facility housekeeping, onsite traffic control, process rate, schedules for waste delivery vehicle flow, wastewater collection, storm water collection, vector control, odor control, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles.

3. The owner or operator shall implement waste receiving area control procedures that provide for the inspection of the incoming waste stream for the purpose of removing unprocessable or potentially explosive materials prior to the initiation of processing. In addition, the inspection shall effectively prevent the acceptance of unauthorized waste types by inspecting a minimum of 1.0% of the incoming loads of waste. If the facility receives waste generated outside of Virginia and the regulatory structure in the originating jurisdiction allows for the disposal of wastes at landfills or the incineration of wastes that are prohibited or restricted by Virginia's laws and regulations prohibit, a minimum of 10% of the incoming loads of waste from those jurisdictions shall be inspected. These procedures and necessary contingency plans shall be incorporated into the facility's operating manual.

4. A written contingency plan shall be prepared for a waste to energy facility covering operating procedures to be employed during periods of nonoperation. This plan shall set forth procedures to be employed in the event of equipment breakdown that will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities.

5. Leachate and wash water from an waste to energy facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES Permit issued pursuant to the State Water Control Board regulation (9VAC25-31).

6. Arrangements for disposal of facility-generated waste shall be established and maintained throughout the life of the waste to energy or incineration facility.

7. Chemical analyses of residues.

a. The owner or operator shall perform a chemical analyses of all residual ash, in accordance with the conditions of the solid waste management facility permit and current solid waste management regulations.

b. Samples and measurements taken for this purpose shall be representative of the process or operation and shall be performed in accordance with the procedures outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods," EPA publication SW-846. At a minimum the sampling shall include analyses for toxicity and shall be performed at the frequency specified in the facility's permit.

c. The department may require the operator to perform additional analyses on ash removed from exhaust gases and collected by emission control equipment at a frequency established by the department in the facility's permit.

d. A report containing the following information shall be submitted to the department within 90 days of sample collection:

(1) The date and place of sampling and analysis;

(2) The names of the individuals who performed the sampling and analysis;

(3) The sampling and analytical methods utilized;

(4) The results of such sampling and analyses; and

(5) The signature and certification of the report by an authorized agent for the facility.

F. Waste piles.

1. No putrescible solid waste shall remain at the storage or treatment facility at the end of the working day unless it is stored in lined or covered waste storage areas, or interim transportation vehicles (trailers, roll-off containers) designed specifically for storage.

2. A written operating plan for the waste management facility shall be prepared covering at the minimum:

a. Facility housekeeping, onsite traffic control, schedules for waste delivery vehicle flow, wastewater/leachate collection, storm water collection, vector control, odor control, dust suppression, noise control, and methods of enforcement of traffic flow plans for the waste delivery vehicles.

b. A description of types of wastes that will be managed at the facility, of the storage or treatment activity, of any required testing including test methods and frequencies, and sampling techniques.

c. A description of the management and disposition of waste materials will be provided that addresses waste materials that are undesirable and will not be received at the facility.

- d. Descriptions of first-in, first-out waste management procedures to ensure that the oldest waste materials being stored are sent offsite for re-use or disposal prior to newer materials.
 - e. A fire prevention and suppression program designed to minimize hazards when storing organic waste streams.
3. A written contingency plan shall be prepared covering operating procedures to be employed during periods of nonoperation. This plan shall set forth procedures to be employed in the event of equipment breakdown that will require standby equipment, extension of operating hours, or diversion of solid waste to other facilities.
 4. Leachate and run-off that have been in contact with the contents of the waste pile shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued pursuant to 9VAC25-31.
 5. Collection and holding facilities associated with run-on and run-off control systems shall be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.
 6. If the pile contains any particulate matter that may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the pile to control wind dispersal.
 7. While a waste pile is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:
 - a. Deterioration, malfunctions, or improper operation of run-on and run-off control systems;
 - b. Proper functioning of wind dispersal control systems, where present; and
 - c. The presence of leachate in and proper functioning of leachate collection and removal systems, where present.
 8. Incompatible wastes, or incompatible wastes and materials shall not be placed in the same pile.
 9. Roads serving the unloading, treatment, and storage areas shall be maintained to be passable in all weather by ordinary vehicles when the facility is operating. All operation areas and units shall be accessible.

9VAC20-81-350. Recordkeeping requirements.

Recordkeeping for compost facilities, solid waste transfer stations, centralized waste treatment facilities, materials recovery facilities, waste to energy and incineration facilities, waste piles, and miscellaneous facilities shall be governed by the standards as set forth in this section. Records to be maintained include:

1. The facility owner or operator shall record self-inspections in an inspection log. These records shall be retained for at least three years from the date of inspection. They must include the date and time of the inspection, the name of the inspector, a description of the inspection including the identity of specific equipment and structures inspected, the observations recorded, and the date and nature of any remedial actions implemented or repairs made as a result of the inspection.
2. The facility owner or operator shall record any monitoring information (including all calibration and maintenance records and copies of all reports required by this part or the permit or permit-by-rule). Records for monitoring

information shall include the date, exact place, and time of sampling or measurements; the name of the individual who performed the sampling and measurement; the date analyses were performed; the name of the individual who performed the analyses; the analytical techniques or methods used; and the result of such analyses. Additional information relating to the analysis, including records of internal laboratory quality assurance and control, shall be made available to the department at its request.

3. The facility owner or operator shall retain records of all unauthorized solid waste accepted identifying the waste and its final disposition. Such records shall include the date solid waste was received, the type of solid waste received, the date of disposal, and the disposal method and location.

4. The records shall be retained in the operating record for the facility for a period of at least three years from the date of the sample analysis, measurement, report, or application.

9VAC20-81-360. Closure requirements.

The closure of all compost facilities, solid waste transfer stations, centralized waste treatment facilities, materials recovery facilities, waste to energy and incineration facilities, and waste piles shall be governed by the standards as set forth in this section:

1. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, the postclosure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the groundwater, surface water, or to the atmosphere.

a. At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate. For miscellaneous units, all waste, materials contaminated with waste constituents, and treatment residue shall be removed and disposed in a permitted facility.

b. If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in subdivision 1 a of this section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he shall close the facility and perform postclosure care in accordance with the closure and postclosure care requirements of Part III (9VAC20-81-160 and 9VAC20-81-170, respectively). In addition, for compost facilities, other corrective measures approved by the department may be used to remediate the site.

2. Closure plan and modification of plan.

a. The owner or operator of any facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility/unit at its full operation under the permit conditions. The closure plan shall include, at least a schedule for final closure including, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates that will allow tracking of the progress of closure.

- b. The owner or operator may amend his closure plan at any time during the active life of the facility. The owner or operator shall so amend his plan any time changes in operating plans or facility design affects the closure plan. The amended closure plan shall be placed in the operating record.
 - c. The owner or operator shall submit to the department the amended closure plan that was placed in the operating record.
 - d. At least 180 days prior to beginning closure of each unit, the owner or operator shall notify the department of the intent to close.
 - e. The owner or operator shall provide to the department a certification from a professional engineer that the facility has been closed in accordance with the closure plan.
3. Time allowed for closure.
- a. The owner or operator shall complete closure activities in accordance with the closure plan and within six months after receiving the final volume of wastes. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that he has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive facility.
 - b. The owner or operator shall post one sign notifying all persons of the closing, and providing a notice prohibiting further receipt of waste materials. The sign will remain in place until closure activities are complete. Further, suitable barriers shall be installed at former accesses to prevent new waste from being delivered.
4. Inspection. The department shall inspect all facilities at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall require any necessary construction or such other steps as may be necessary to bring unsatisfactory sites into compliance with this chapter.

9VAC20-81-370. Closure requirements for surface impoundments and lagoons.

A. Closure. At closure, the owner or operator shall:

- 1. Remove all waste residue, contaminated containment system components (liners, etc.), contaminated subsoils, and decontaminate structures and equipment contaminated with waste, and manage them as solid waste (or hazardous waste, if applicable) unless exempt under Part III (9VAC20-81-100 et seq.) of this chapter; or
- 2. Close the impoundment and provide postclosure care for a landfill under Part III (9VAC20-81-100 et seq.) of this chapter, including the following:
 - a. Eliminate free liquids by removing liquid waste and waste residue;
 - b. Install a groundwater monitoring system and initiate groundwater monitoring in accordance with the requirements of 9VAC20-81-250;
 - c. Stabilize remaining waste residues to a bearing capacity necessary to support the final cover; and
 - d. Cover the surface impoundment with a final cover designed and constructed in accordance with the requirements of 9VAC20-81-160 D 2.

B. Inspection. The department shall inspect all solid waste management facilities at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory and shall require any necessary construction or such other steps as may be necessary to bring unsatisfactory sites into compliance with this chapter.

9VAC20-81-380. Remediation waste management units.

A. General.

1. For the purpose of implementing remedies under 9VAC20-81-45 or under the Voluntary Remediation Regulations (9VAC20-160), the director may designate an area of a facility as a remediation waste management unit (RWMU) as defined in Part I (9VAC20-81) of this chapter. One or more RWMUs may be designated at a facility.
2. The director may designate a unit subject to this chapter as an RWMU or incorporate such a unit into a designated RWMU if:
 - a. The unit is closed or has begun the closure process under 9VAC20-81-160 C; and
 - b. Inclusion of the unit will enhance implementation of effective, protective, and reliable remedial actions for the facility.
3. Consolidation or placement of remediation wastes into a designated RWMU does not constitute creation of a unit subject to the siting, design, and operation requirements of Part III (9VAC20-81-120, 9VAC20-81-130, and 9VAC20-81-140) and the permitting requirements of Part V (9VAC20-81-400 et seq.) of this chapter.
4. The applicable requirements for groundwater monitoring and closure under 9VAC20-81-250 and 9VAC20-81-160 will continue to apply to the RWMU.

B. Criteria for designating RWMUs. The director will designate an RWMU if he finds that:

1. The RWMU shall facilitate the implementation of reliable, protective and cost-effective remedies;
2. Waste management activities associated with the RWMU shall not create unacceptable risks to humans or to the environment resulting from exposure to solid wastes and solid waste constituents;
3. If an inclusion of uncontaminated areas of the facility into an RWMU is requested, such an inclusion will be more protective than management of such wastes at contaminated areas of the facility;
4. Areas within the RWMU where wastes remain in place after closure of the RWMU shall be managed and contained so as to minimize future releases, to the extent practicable;
5. The RWMU shall expedite the timing of the remedial activity implementation when appropriate and practicable;
6. The RWMU shall enable the use, when appropriate, of treatment technologies (including innovative treatment technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the RWMU; and
7. The RWMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the RWMU.

C. Requirements. The director will specify the requirements for RWMUs to include, but not be limited to, the following:

1. The areal configuration of the RWMU;
2. Requirements for remediation waste management to include the specification of applicable design, operation and closure requirements;
3. Requirements for groundwater monitoring that:
 - a. Continue to detect and to characterize the nature, extent, concentration, direction, and movement of existing releases of solid waste constituents in groundwater from sources located within the RWMU; and
 - b. Detect and subsequently characterize releases of solid waste constituents to groundwater that may occur from areas of the RWMU in which wastes will remain in place after closure of the RWMU.
4. Closure and postclosure care requirements:
 - a. Closure of RWMUs shall:
 - (1) Minimize the need for further maintenance; and
 - (2) Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, for areas where wastes remain in place, postclosure escape of solid waste, solid waste constituents, leachate, contaminated run-off, or waste decomposition products to the ground, surface waters, or the atmosphere.
 - b. Requirements for closure of an RWMU shall include the following, as appropriate and deemed necessary by the director for a given RWMU:
 - (1) Requirements for excavation, removal, treatment, or containment of wastes;
 - (2) For areas in which wastes will remain in place after closure of the RWMU, requirements for capping of such areas; and
 - (3) Requirements for decontamination of equipment, devices, and structures in remediation waste management activities within the RWMU.
 - c. In establishing specific closure requirements for RWMUs, the director will consider the following factors:
 - (1) RWMU characteristics;
 - (2) Volume of waste that remains in place after closure;
 - (3) Potential for releases from the RWMU;
 - (4) Physical and chemical characteristics of the waste;
 - (5) Hydrological and other relevant environmental conditions at the facility that may influence the migration of any potential or actual releases; and
 - (6) Potential for exposure of humans and environmental receptors if releases were to occur from the RWMU.
 - d. Postclosure requirements as necessary to protect human health and the environment to include, for areas where wastes will remain in place, monitoring and maintenance activities and the frequency with which such activities shall be performed in order to ensure the integrity of any final cap, final cover, or other containment system.
5. The director will document the rationale for designating RWMUs.

6. The designation of an RWMU does not change the department's existing authority to address clean-up levels, media specific points of compliance to be applied to remediation at a facility, or other remedy selection decisions.

D. Temporary units.

1. Temporary tanks and container storage areas may be used for treatment or storage of remediation wastes during remedial activities, if the director determines that design, operating, or closure standards applicable to RWMUs may be replaced by alternative requirements that are protective of human health and the environment.

2. Any temporary unit to which alternative requirements are applied shall be:

- a. Located within the facility boundary; and
- b. Used only for the treatment or storage of remediation wastes.

3. In establishing standards to be applied to temporary units, the director will consider the following factors:

- a. Length of time such unit will be in operation;
- b. Type of unit;
- c. Volumes of waste to be managed;
- d. Physical and chemical characteristics of the waste to be managed in the unit;
- e. Potential for releases from the unit;
- f. Hydrogeological and other relevant environmental conditions at the facility that may influence migration of any potential releases; and
- g. Potential for exposure of humans and environmental receptors if releases were to occur from the unit.

4. The director will specify the length of time a temporary unit will be allowed to operate, to be no longer than a period of one year. The director will also specify the design, operating, and closure requirements for the unit.

5. The director may extend the operational period of a temporary unit once for a period of one year beyond that originally specified, if the director determines that:

- a. Continued operation of the unit will not pose a threat to human health and the environment; and
- b. Continued operation of the unit is necessary to ensure timely and efficient implementation of the remedial actions at the facility.

9VAC20-81-385. Landfill mining.

A. Because of the varied and experimental nature of the landfill mining processes currently employed, 9VAC20-81-395 offers the management standards. For this reason, portions of that section shall be made applicable to the mining process. As used in this section "landfill mining" does not include excavation of waste to facilitate installation of landfill gas, leachate management, or other utility systems provided waste excavated is managed and cover installed in accordance with 9VAC20-81-140 or 9VAC20-81-160, as applicable.

B. In addition to fulfilling applicable requirements of 9VAC20-81-395, the owner or operator of a landfill mining facility shall prepare an operational plan that will describe in detail the procedures that will be employed in opening the closed landfill areas, the phased description of opened areas, the procedures that will be employed in excavation

of opened areas, the management of excavated materials, and disposition of recovered materials and unusable residues. The operational plan shall also contain an estimate of the duration of the mining process and the final use of the recovered air space.

C. In cases where residues will be disposed on site, the disposal units shall be regulated under Part III (9VAC20-81-100 et seq.) of this chapter.

9VAC20-81-395. Miscellaneous facilities.

A. The requirements in this section apply to owners and operators of facilities that treat or store solid waste in facilities or units not otherwise regulated under Part III (9VAC20-81-100 et seq.) of this chapter or 9VAC20-81-310 through 9VAC20-81-385.

B. A miscellaneous unit shall be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to,, siting, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of solid waste or constituents of solid wastes from the unit. Permit terms and provisions shall include those requirements of Part III (9VAC20-81-100 et seq.), 9VAC20-81-310 through 9VAC20-81-385, and Part V (9VAC20-81-400 et seq.), that are appropriate for the miscellaneous unit being permitted.

C. Protection of human health and the environment includes, but is not limited to:

1. Proper location of the facility and the unit considering:

- a. The hydrologic and geologic characteristics of the unit and the surrounding area, including the topography of the land around the facility and the unit;
- b. The atmospheric and meteorological characteristics of the unit and the surrounding area;
- c. The patterns of precipitation in the region;
- d. The patterns of land use in the surrounding area;
- e. The potential for health risks caused by human exposure to waste constituents; and
- f. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

2. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment, considering:

- a. The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;
- b. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;
- c. The quantity and direction of groundwater flow;
- d. The proximity to and withdrawal rates of current and potential groundwater uses; and
- e. The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation.

3. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:

- a. The volume and physical and chemical characteristics of the waste in the unit;
- b. The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;
- c. The quantity, quality, and direction of groundwater flow;
- d. The proximity of the unit to surface waters;
- e. The current and potential uses of nearby surface waters and any water quality standards established for those surface waters; and
- f. The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils.

4. Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

- a. The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;
- b. The effectiveness and reliability of systems and structures to reduce or prevent emissions of waste constituents to the air;
- c. The operating characteristics of the unit; and
- d. The existing quality of the air, including other sources of contamination and their cumulative impact on the air.

D. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies, when called for by the performance standards in subsection C of this section, shall ensure compliance with any applicable requirements of Parts V (9VAC20-81-400 et seq.), VI (9VAC20-81-610), or VIII (9VAC20-81-700) of this chapter, as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

E. Closure shall be in accordance with 9VAC20-81-160 D.

F. Postclosure care. If a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, it shall close as a disposal unit in accordance with the requirements of 9VAC20-81-160 and 9VAC20-81-170.

9VAC20-81-397. Exempt yard waste composting facilities.

A. Applicability.

- 1. The standards in subsection B of this section apply to persons who compost vegetative waste in a manner described in the conditional exemption set forth at 9VAC20-81-95 D.
- 2. The standards in subsection C of this section apply to persons who operate small vegetative waste disposal units on their property.

B. Composting of yard waste. Additional requirements for managing conditionally exempt yard waste compost facilities, described under 9VAC20-81-95 D 6, are as follows:

1. Owners or operators of agricultural operational activities that accept only yard waste generated offsite are exempt from all other provisions of this chapter as applied to the composting activities provided that:

- a. The total time for composting process and storage of material that is being composted shall not exceed 18 months prior to its field application or sale as a horticultural or agricultural product;
- b. No waste material other than yard waste is received;
- c. The total amount of yard waste received from offsite never exceeds 6,000 cubic yards in any consecutive 12-month period;
- d. All applicable standards of local ordinances that govern or concern yard waste handling, composting, storage, or disposal are satisfied;
- e. They pose no nuisance or present or potential threat to human health or the environment; and
- f. Before receiving any waste, the owner submits a complete DEQ Form YW-3;

2. Owners or operators of agricultural operations that accept only Category I feedstocks and manures from herbivorous animals generated offsite are exempt from all other provisions of this chapter as applied to the composting activities provided that:

- a. The composting area is located not less 300 feet from a property boundary of a parcel owned or controlled by another person, is located not less than 1,000 feet from an occupied dwelling not located on the same property as the composting area, and is not located within an area designated as a flood plain;
- b. The agricultural operation has at least one acre of ground suitable to receive yard waste for each 150 cubic yards of finished compost;
- c. The total time for the composting process and storage of material that is being composted or has been composted shall not exceed 18 months prior to the field application or sale as horticultural or agricultural product;
- d. The owner or operator of any agricultural operation that receives in any 12-month period (consecutive) more than 6,000 cubic yards of waste generated from property not within the control of the owner or the operator shall submit by April 1 each year to the director an annual report in accordance with subdivision 4 describing the volume and types of yard waste received for composting by the operation between January 1 and December 31 of the preceding consecutive 12 months and shall certify that the yard waste composting facility complies with local ordinances;
- e. No waste material other than yard waste and manures from herbivorous animals are received;
- f. The quantities of offsite manures from herbivorous animals brought onsite are limited to achieve a carbon to nitrogen ratio of 25:1 to 40:1. All manures must be incorporated into the compost within 24 hours of delivery. No offsite manures may be stored onsite; and
- g. Prior to the receipt of solid waste generated offsite, the owner or operator of the agricultural operation intending to operate under this exemption shall submit a complete DEQ Form YW-4.

3. Owners or other persons authorized by the owner of real property who receive only yard waste generated offsite for the purpose of producing compost on said property shall be exempt from all requirements of this chapter as applied to the composting activity provided that:

- a. Not more than 500 cubic yards of yard waste generated offsite is received at the owner's said property in any consecutive 12-month period;
- b. No compensation will be received, either directly or indirectly, by the owner or other persons authorized by the owner of said property from parties providing yard waste generated off said property;
- c. All applicable standards of local ordinances that govern or concern yard waste handling, composting, storage, or disposal are satisfied; and
- d. They pose no nuisance or present or potential threat to human health or the environment.

4. Owners or operators of an agricultural composting operation in accordance with subdivision 2 of this subsection, who are exempt from the permitting requirements in accordance with 9VAC20-81-95 D and who may receive more than 6,000 cubic yards of yard waste generated from property not within the control of the owner or operator in any 12-month period shall submit an annual report on DEQ Form YW-2. The report shall describe the volume and types of yard waste received for composting. Completion and filing of the form by July 15 for activities in the preceding 12 months (January 1 through December 31) constitutes compliance with the requirements. The annual report shall be submitted on DEQ Form YW-2.

C. Small disposal units for vegetative wastes from land clearing. Additional requirements for managing small disposal units for vegetative waste from land clearing as exempted under 9VAC20-81-95 D 17 are as follows:

Owners of real property who operate small waste disposal units that qualify under all the conditions of this subsection shall be exempt from other provisions, including permitting, of this chapter as applied to those units provided:

1. No person other than the owner of the real property shall be exempt under this section.
2. All owners of the real property who hold title to property at the time the disposal unit is initially opened or during the time the unit remains open (limited to two calendar years below) shall, in the exercise of this exemption, accept responsibility for maintaining compliance of the unit with all requirements of this chapter as set out in this exemption.
3. The owner agrees that he shall not sell, give, or otherwise transfer the responsibility for the unit's compliance to any other party throughout its active life, the postclosure care period, and the corrective action period, and that he shall remain the principal party responsible for the compliance of the unit with this chapter.
4. Only units that are in compliance with all requirements of this section shall qualify, and units that are not in compliance with all requirements of this section shall not qualify or shall cease to qualify. Units that qualify for this exemption shall comply with the following requirements:

- a. Only vegetative waste or yard waste shall be placed in the disposal unit; however, grass trimmings or bulk leaves shall not be placed in the disposal unit.

- b. The waste disposal unit shall not be larger than 0.50 acres in size.
- c. The waste disposal unit shall not be located within 1,000 feet of any other waste disposal unit of any type, including other disposal units exempted by this chapter.
- d. The waste disposal unit shall not be located within 150 feet of any existing building or planned building. The waste disposal unit shall not be located within 50 feet of any existing or planned subdivision lot that may be used for the erection of a building.
- e. The waste disposal unit shall not be located within 100 feet of a flowing stream; body of water; any well, spring, sinkhole, or unstable geologic feature. Also, it shall not be located within 200 feet of any groundwater source of drinking water.
- f. The waste disposal unit shall be constructed to separate all waste by at least two feet vertically from the seasonal high water table.
- g. The waste disposal unit should not obstruct the scenic view from any public road and should be graded to present a good appearance.
- h. Mounding of the waste disposal unit shall not reach an elevation more than 20 feet above the original elevation of the terrain before the disposal began. The elevation of the original terrain should be based on the general area and not the bottom of ravines and small depressions in the disposal area.
- i. The waste received by the waste disposal unit shall be limited to the following:
 - (1) Waste generated onsite;
 - (2) Waste generated by clearing the path of a roadway or appurtenances to the roadway when buried within the right-of-way of the roadway (waste shall not be buried in the structural roadway prism) or adjacent land under a permanent easement and the terms of the easement incorporate the construction of the disposal unit; and
 - (3) Waste from property that is owned by the owner of the disposal unit, within the same construction project, and generated not more than two miles from the unit.
- j. The waste disposal unit shall be closed two calendar years from the date it first receives waste. The closure shall include cover with two feet of compacted soil, grading for good appearance with slopes that prevent erosion, and seeding or revegetation. During the life of the unit, earthen material should be applied periodically to prevent excessive subsidence of the waste disposal unit when closed. Sides of the finished unit shall be sloped to prevent erosion, and slopes shall not be steeper than one vertical foot to three horizontal feet.
- k. The location plat and legal description, as set out in subdivision 4 p of this subsection, of all units that are not located wholly within the bed or right-of-way of a public road shall be recorded in the deed book for the property in the court of record prior to the first receipt of waste. Waste disposal shall not be allowed within the structural roadway prism.
- l. The owner shall maintain continuous control of access to all disposal units from the time they are opened until they are closed in accordance with this section. The owner shall prevent fires and provide standby equipment and supplies sufficient to easily suppress a fire. Brush and small limbs that might

provide tinder for a fire shall be covered at the end of the work day with one foot of soil.

m. The owner shall not be exempt from the CDD landfill groundwater monitoring and corrective action requirements of 9VAC20-81-250 and 9VAC20-81-260, respectively, to include required monitoring during the postclosure period.

n. The owner shall not be exempt from the decomposition gas monitoring and venting requirements of 9VAC20-81-210. The owner of a small waste disposal unit shall comply in all respects with the decomposition gas monitoring and venting requirements as established in this chapter.

o. The owner shall not be exempt from any requirement of the Financial Assurance Regulations For Solid Waste Disposal Facilities, (9VAC20-70), and shall comply with all financial assurance requirements.

p. At least six weeks before beginning construction of a vegetative waste disposal unit, the owner of the real property shall notify in writing the director, the governing board of the city, county, or town wherein the property lies, and all property owners whose parcel will abut the area of the proposed disposal unit. The notice shall give the names and legal addresses of the owners, the type of unit to be developed, and the projected date of initial construction of the unit. The owner shall include a plat and legal description of the disposal unit's metes and bounds prepared and stamped by a Virginia licensed land surveyor. The plat and description shall follow all standard practice such as inclusion of the nearest existing intersection of state roads and existing fixed survey markers in the vicinity.

q. Unless otherwise designated, all monitoring and reporting requirements shall begin at the initiation of the disposal operations and all reports shall be sent to the department and the chief executive of the local government.

Part V
Permitting of Solid Waste Management Facilities

9VAC20-81-400. Applicability.

A. No person shall construct, operate, or modify a solid waste management facility in the Commonwealth without a permit issued by the director unless otherwise specified in subsection D of this section or 9VAC20-81-410.

B. Each solid waste management facility permit shall be limited to one site and shall be nontransferable between sites.

C. Issuance of a new permit is required when there is:

1. Any new solid waste management facility;
2. Any change in design or process of a solid waste management facility that will, in the opinion of the director, result in a substantially different type of facility;
3. Any expansion beyond the facility boundary, expansion of the waste management boundary or increase in the capacity of the facility (includes expansions) specified in the existing permit; or
4. Any expansion beyond the facility boundary for remedial purposes. However, for these types of expansions, which do not provide for additional capacity, the expansion will be considered a permit modification for the purpose of establishing permit fees under the provisions of 9VAC20-90.

D. The director may grant a variance from any provision contained in this part to a permittee provided the requirements of Part VII (9VAC20-81-700 et seq.) of this chapter are met.

9VAC20-81-410. Permits-by-rule and other special permits.

A. Permits by rule.

1. As an alternate to obtaining a full permit, an owner or operator of any of the following facilities may elect to operate under this section:

- a. Compost facility;
- b. Solid waste transfer station;
- c. Materials recovery facility;
- d. Waste to energy, thermal treatment, or incineration facility;
- e. Waste pile; or
- f. Centralized waste treatment facility

2. Submission. The owner or operator of a facility described in subdivision 1 of this section shall be deemed to have a solid waste management facility permit notwithstanding any other provisions of Part V (9VAC20-81-400 et seq.) of this chapter, except 9VAC20-81-450 B 2 and 3, if the owner or operator provides to the department the information described in this subdivision, and the department acknowledges completeness of the submittal per subdivision 4 of this subsection:

- a. A notice of intent to operate such a facility with documentation required under 9VAC20-81-450 B;
- b. A certification that the facility meets the siting standards, as applicable, of 9VAC20-81-320;

c. A certification that the facility meets the statutory requirements for consistency with solid waste management plans as recorded in § 10.1-1408.1 of the Code of Virginia;

d. A certification that the standards, as applicable, of 9VAC20-81-340 are met in an operations manual to be maintained in the operating record in accordance with 9VAC20-81-485;

e. A certificate signed by a professional engineer that:

(1) The facility has been designed and constructed in accordance with the standards, as applicable, of 9VAC20-81-330; and

(2) The standards, as applicable, of 9VAC20-81-360 are met in a closure plan to be maintained in the operating record;

f. Demonstration of legal control over the site for the permit life;

g. A certification from the State Corporation Commission that the business entity pursuing the permit-by-rule status is a valid entity, authorized to transact its business in Virginia. This requirement does not apply to those facilities owned solely by governmental units;

h. Closure cost estimates and proof of financial responsibility as required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70); proof of financial responsibility must be for the entity identified in subdivision 2 g of this subsection;

i. The results of the public participation effort conducted in accordance with the requirements contained in subdivision 3 of this subsection;

j. The following additional information for the specific facilities as noted:

(1) For compost facilities only, a description of the type of facility and the classification of materials that will be composted as classified under 9VAC20-81-310 A 4;

(2) For waste piles only, proof that the facility has a valid VPDES permit, if applicable; and

(3) For waste to energy, thermal treatment, or incineration facilities or materials recovery facilities engaged in reclamation of petroleum-contaminated materials only:

(a) Proof that the facility has a permit issued in accordance with the regulations promulgated by the State Air Pollution Control Board; and

(b) In the case of thermal treatment facilities or materials recovery facilities engaged in reclamation of petroleum-contaminated materials, a description of how the requirements of 9VAC20-81-660 will be met; and

k. The applicable permit fees under the provisions of 9VAC20-90.

3. Public participation.

a. Before the initiation of any construction at the facility under subdivision 1 of this subsection, the owner or operator shall publish a notice once a week for two consecutive weeks in a major local newspaper of general circulation of the intent to construct and operate a facility eligible for a permit-by-rule. The notice shall include:

(1) A brief description of the proposed facility and its location;

(2) A statement that the purpose of the public participation is to acquaint the public with the technical aspects of the facility and how the standards and the

requirements of this chapter will be met, to identify issues of concern, to facilitate communication and to establish a dialogue between the permittee and persons who may be affected by the facility;

(3) Announcement of a 30-day comment period, in accordance with subdivision 3 d of this subsection, and the name, telephone number, and address of the owner's or operator's representative who can be contacted by the interested persons to answer questions or where comments shall be sent;

(4) Announcement of the date, time, and place for a public meeting held in accordance with subdivision 3 c of this subsection; and

(5) Location where copies of the documentation to be submitted to the department in support of the permit-by-rule notification can be viewed and copied.

b. The owner or operator shall place a copy of the documentation and support documents in a location accessible to the public in the vicinity of the proposed facility.

c. The owner or operator shall hold a public meeting not earlier than 14 days after the first publication of the notice required in subdivision 3 a of this subsection and no later than seven days before the close of the 30-day comment period. The meeting shall be held to the extent practicable in the vicinity of the proposed facility at a time convenient for the public.

d. The public shall be provided 30 days to comment on the technical and the regulatory aspects of the proposal. The comment period will begin on the date the owner or operator publishes the first notice in the local newspaper.

e. The requirements of this section do not apply to the owners or operators of a material recovery facility, waste to energy facility, incinerator, or a thermal treatment unit that has received a permit from the department based on the regulations promulgated by the State Air Pollution Control Board or State Water Control Board that required facility-specific public participation procedures.

4. Completeness review. Upon receiving the certifications and other required documents, including the results of the public meeting and the applicant's response to the comments received, the department shall conduct a completeness review and respond within 30 calendar days. If the applicant's submission is administratively complete, the applicant shall be deemed to operate under permit-by-rule status. If the applicant's submission is administratively incomplete, the applicant shall be deemed to not have a permit-by-rule. The department may require the operator to submit the full permit application and to obtain a regular solid waste management facility permit if it is determined the requested operation does not qualify for permit-by-rule status.

5. Change of ownership. A permit by rule may not be transferred by the permittee to a new owner or operator. However, when the property transfer takes place without proper closure, the new owner shall notify the department of the sale and fulfill all the requirements contained in subdivision 2 of this subsection. Upon presentation of the financial assurance proof required by 9VAC20-70 by the new owner, the department will release the former owner from his closure and financial responsibilities and acknowledge existence of the new permit by rule in the name of the new owner.

6. Facility modifications. The owner or operator of a facility operating under a permit by rule may modify its design and operation by furnishing the department a new certificate and applicable permit fees under the provisions of 9VAC20-90. For modifications of design, the new certificate shall be prepared by a professional engineer and shall include new documentation required under subdivision 2, as applicable, and subdivision 3 of this subsection. For modifications to the operations, the owner or operator shall submit to the department a new certificate and documentation required under subdivision 2 of this subsection, as applicable. Whenever modifications in the design or operation of the facility affect the provisions of the closure plan, the owner or operator shall revise the closure plan and submit to the department a new certificate and documentation required under subdivision 2 of this subsection, as applicable. Should there be an increase in the closure costs, the owner or operator shall submit a new proof of financial responsibility as required by the Financial Assurance Regulations for Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70).

7. Loss of permit by rule status. In the event that a facility operating under a permit by rule violates any applicable siting, design and construction, or closure provisions of 9VAC20-81-320, 9VAC20-81-330 or 9VAC20-81-360, respectively, the owner or operator of the facility will be considered to be operating an unpermitted facility as provided for in 9VAC20-81-45 and shall be required to either obtain a new permit as required by Part V (9VAC20-81-400 et seq.) or close under Part III (9VAC20-81-100 et seq.) or IV (9VAC20-81-300 et seq.) of this chapter, as applicable.

8. Termination. The director shall terminate a permit by rule and shall require closure of the facility whenever he finds that:

- a. As a result of changes in key personnel, the requirements necessary for a permit by rule are no longer satisfied;
- b. The applicant has knowingly or willfully misrepresented or failed to disclose a material fact in his disclosure statement, or any other report or certification required under this chapter, or has knowingly or willfully failed to notify the director of any material change to the information in the disclosure statement;
- c. Any key personnel have been convicted of any of the crimes listed in § 10.1-1409 of the Code of Virginia, punishable as felonies under the laws of the Commonwealth, or the equivalent of them under the laws of any other jurisdiction; or has been adjudged by an administrative agency or a court of competent jurisdiction to have violated the environmental protection laws of the United States, the Commonwealth, or any other state and the director determines that such conviction or adjudication is sufficiently probative of the permittee's inability or unwillingness to operate the facility in a lawful manner; or
- d. The operation of the facility is inconsistent with the facility's operations manual and/or the operational requirements of the regulations.

B. Emergency permits. Notwithstanding any other provision of this chapter, in the event the director finds an imminent and substantial endangerment to human health or the environment, the director may issue a temporary emergency permit to a facility to allow treatment, storage, or disposal of solid waste for a nonpermitted facility or solid waste not covered by the permit for a facility with an effective permit. Such permits:

1. May be oral or written. If oral, it shall be followed within five days by a written emergency permit;
2. Shall not exceed 90 days in duration;
3. Shall clearly specify the solid wastes to be received, and the manner and location of their treatment, storage, or disposal;
4. Shall be accompanied by a public notice including:
 - a. Name and address of the office granting the emergency authorization;
 - b. Name and location of the facility so permitted;
 - c. A brief description of the wastes involved;
 - d. A brief description of the action authorized and reasons for authorizing it; and
 - e. Duration of the emergency permit; and
5. Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of this chapter, and shall include the applicable permit fees under the provisions of 9VAC20-90.

Any permit issued under this subsection may be renewed not more than two times, if necessary. Each such renewal shall be for a period of not more than 90 days.

In the event that the Governor declares a state of emergency, open burning of debris waste from the clean-up operations is conditionally exempt from this chapter provided that no open dump, hazard, or public nuisance is created.

C. Experimental facility permits.

1. The director may issue an experimental facility permit for any solid waste treatment facility that proposes to utilize an innovative and experimental solid waste treatment technology or process for which permit standards for such experimental activity have not been promulgated under Part IV (9VAC20-81-300 et seq.) of this chapter. Any such permit shall include such terms and conditions as will assure protection of human health and the environment. Such permits shall:
 - a. Provide for the construction of such facilities based on the standards shown in 9VAC20-81-395, as necessary;
 - b. Provide for operation of the facility for no longer than one calendar year unless renewed as provided in subdivision 3 of this subsection;
 - c. Provide for the receipt and treatment by the facility of only those types and quantities of solid waste that the director deems necessary for purposes of determining the efficiency and performance capabilities of the technology or process and the effects of such technology or process on human health and the environment; and
 - d. Shall include such requirements as the director deems necessary to protect human health and the environment (including, but not limited to, requirements regarding monitoring, operation, closure, and remedial action), and such requirements as the director deems necessary regarding testing and providing of information to the director with respect to the operation of the facility.
2. For the purpose of expediting review and issuance of permits under this subsection, the director may, consistent with the protection of human health and

the environment, modify or waive permit application and permit issuance requirements in Part V (9VAC20-81-400 et seq.) of this chapter, except that there may be no modification or waiver of regulations regarding local certification, disclosure statement requirements, financial responsibility (including insurance), or procedures regarding public participation.

3. The applicant for an experimental permit shall include the applicable permit fees under the provisions of 9VAC20-90. Any experimental permit issued under this subsection may be renewed not more than three times. Each such renewal shall be for a period of not more than one calendar year.

9VAC20-81-430. Permit conditions.

When issuing or modifying a permit, the director may include conditions that he finds necessary to protect public health or the environment or to ensure compliance with this chapter.

9VAC20-81-450. Permit application procedures.

A. Any person who proposes to establish a new solid waste management facility (SWMF) or modify an existing SWMF shall submit a permit application to the department, using the procedures set forth in this section and other pertinent sections of this part.

B. Notice of intent.

1. To initiate the permit application process, any person who proposes to establish a new solid waste management facility (SWMF) or modify an existing SWMF or to modify an existing permit shall file a notice of intent with the director stating the desired permit or permit modification, the precise location of the proposed facility, and the intended use of the facility. The notice shall be in letter form and be accompanied by an area map and a site location map.

2. No application for a new solid waste management facility permit or application for a modification for a noncaptive industrial landfill to expand or increase capacity shall be deemed complete unless it is accompanied by DEQ Form DISC-01 and 02 (Disclosure Statement) for all key personnel.

3. No application for a new solid waste management facility permit or application for a modification for a noncaptive industrial landfill to expand or increase capacity shall be considered complete unless the notice of intent is accompanied by a certification from the governing body of the county, city, or town in which the facility is to be located stating that the location and operation of the facility are consistent with all applicable local ordinances, as well as with the local or regional solid waste management plan (SWMP) approved by the department or has initiated the process of amending the SWMP to include the new or expanded facility or an increase in capacity. No certification shall be required for the application for a modification of an existing permit (not including increase in capacity or expansion) other than for a noncaptive industrial landfill in this subdivision. DEQ Form SW-11-1 (Request for Local Government Certification) is provided for the use of the regulated community. Permit and permit-by-rule applicants shall comply with the statutory requirements for consistency with solid waste management plans as recorded in § 10.1-1408.1 of the Code of Virginia.

4. If the applicant proposes to operate a new sanitary landfill or transfer station, the notice of intent shall include a statement describing the steps taken by the

applicant to seek the comments of the residents of the area where the sanitary landfill or transfer station is proposed to be located regarding the siting and operation of the proposed sanitary landfill or transfer station. The public comment steps shall be taken prior to filing with the department the notice of intent.

- a. The public comment steps shall include publication of a public notice once a week for two consecutive weeks in a newspaper of general circulation serving the locality where the sanitary landfill or transfer station is proposed to be located and holding at least one public meeting within the locality at a time convenient to the public to identify issues of concern, to facilitate communication, and to establish a dialogue between the applicant and persons who may be affected by the issuance of a permit for the sanitary landfill or transfer station.
 - b. At a minimum, the public notice shall include:
 - (1) A statement of the applicant's intent to apply for a permit to operate the proposed sanitary landfill or transfer station;
 - (2) The proposed sanitary landfill or transfer station site location;
 - (3) The date, time, and location of the public meeting the applicant will hold; and
 - (4) The name, address, and telephone number of a person employed by an applicant who can be contacted by interested persons to answer questions or receive comments on siting and operation of the proposed sanitary landfill or transfer station.
 - c. The first publication of the public notice shall be at least 14 days prior to the public meeting date.
 - d. In addition, the applicant shall adhere to the applicable requirements of § 10.1-1408.1 B of the Code of Virginia.
5. Disposal capacity guarantee. If the applicant proposes to construct a new sanitary landfill or expand an existing sanitary landfill, a signed statement must be submitted by the applicant guaranteeing that sufficient disposal capacity will be available in the facility to enable localities within the Commonwealth to comply with their solid waste management plans developed pursuant to 9VAC20-130 and certifying that such localities will be allowed to contract for and reserve disposal capacity in the facility. This provision does not apply to permit applications from one or more political subdivisions for new or expanded landfills that will only accept municipal solid waste generated within those jurisdictions or from other jurisdictions under an interjurisdictional agreement.
6. Host agreement. If a host agreement is required, as noted in § 10.1-1408.1 B 7 of the Code of Virginia, it shall contain all the requirements specified in that section of the law.
7. If the application is for a locality owned and operated sanitary landfill, or the expansion of such a landfill, the applicant shall provide information on:
- a. The daily travel routes and traffic volumes that correlate with the daily disposal limit;
 - b. The daily disposal limit; and
 - c. The service area of the facility.
8. If the application is for a new solid waste management facility or a modification allowing a facility expansion or an increase in capacity, the director shall evaluate

whether there is a need for the additional capacity in accordance with § 10.1-1408.1 D 1 of the Code of Virginia. The information in either subdivision 8 a or b of this subsection must be provided with the notice of intent to assist the director with the required investigation and analysis. Based on the information submitted, the owner or operator will demonstrate how the additional capacity will be utilized over the life of the facility.

a. For any solid waste management facility including a sanitary landfill, information demonstrating that there is a need for the additional capacity. Such information shall include the following. If a certain item is not applicable for a facility, it may be indicated so with reasonable justifications.

- (1) The anticipated area to be served by the facility;
- (2) Similar or related solid waste management facilities that are in the same service area and could impact the proposed facility, and the capacity and service life of those facilities;
- (3) The present quantity of waste generated within the proposed service area;
- (4) The waste disposal needs specified in the local solid waste plan;
- (5) The projected future waste generation rates for the anticipated area to be served during the proposed life of the facility;
- (6) The recycling, composting, or other waste management activities within the proposed service area;
- (7) The additional solid waste disposal capacity and anticipated site life that the facility would provide to the proposed area of service;
- (8) Information demonstrating that the capacity is needed to enable localities to comply with solid waste plans developed pursuant to § 10.1-1411 of the Code of Virginia; and
- (9) Any additional factors that provide justification for the additional capacity provided by the facility.

b. As an alternative, for sanitary landfills, based on current or projected disposal rates, information demonstrating there is less than 10 years of capacity remaining in the facility and information demonstrating either of the following:

- (1) The available permitted disposal capacity for the state is less than 20 years based on the most current reports submitted pursuant to the Waste Information and Assessment Program in 9VAC20-81-80; or
- (2) The available permitted disposal capacity is less than 20 years in either:
 - (a) The planning region, or regions, immediately contiguous to the planning region of the host community; or
 - (b) The facilities within a 75-mile radius of the proposed facility.

9. If the location and operation of the facility is stated by the local governing body to be consistent with all its ordinances, without qualifications, conditions, or reservations, and the notice intent is complete, the applicant will be notified that he may submit his application for a SWMF permit. This application shall be submitted in two parts, identified as Part A and Part B.

10. The applicant shall submit certification from the State Corporation Commission that the business entity pursuing the solid waste management permit is a valid entity, authorized to transact its business in Virginia. This

requirement does not apply to those facilities owned solely by governmental units.

C. Part A application. Part A application provides the information essential for assessment of the site suitability for the proposed facility. It contains information on the proposed facility to be able to determine site suitability for intended uses. It provides information on all siting criteria applicable to the proposed facility.

1. The applicant shall complete, sign, and submit three copies of the Part A application containing required information and attachments as specified in 9VAC20-81-460 to the department and shall submit to the department the applicable permit fee under the provisions of 9VAC20-90.

2. The Part A application will be reviewed for completeness. The applicant will be notified within 30 days whether the application is administratively complete or incomplete. If complete information is not provided within 60 days after the applicant is notified, or an alternate timeframe approved by the department, the application will be returned to the applicant without further review. Subsequent resubmittals of the application, submitted after 18 months from the date of the department's response letter, shall be considered as a new application, unless an alternate timeline has been approved by the department.

3. Upon receipt of a complete Part A application, the department shall conduct a technical review of the submittal. Additional information may be required or the site may be visited before the review is completed. The director shall notify the applicant in writing of approval or disapproval of the Part A application or provide conditions to be made a part of the approval.

4. For sanitary landfills, the director's notification must indicate that the site on which the landfill will be located is suitable for the construction and operation of a landfill. In making this determination, the director will consider the information presented in the site hydrogeologic and geotechnical report (9VAC20-81-460 F), the landfill impact statement (9VAC20-81-460 H 1) and the adequacy of transportation facilities (9VAC20-81-460 G). The director may also consider other factors at his discretion.

5. In case of the approval or conditional approval, the applicant may submit the Part B application provided the required conditions are addressed in the submission.

D. Part B application. The Part B application involves the submission of the detailed engineering design and operating plans for the proposed facility.

1. The applicant, after receiving Part A approval, may submit to the department a Part B application to include the required documentation for the specific solid waste management facility as provided for in 9VAC20-81-470 or 9VAC20-81-480. The Part B application and supporting documentation shall be submitted in three copies and must include the applicable permit fee under the provisions of 9VAC20-90 and the financial assurance documentation as required by 9VAC20-70.

2. The Part B application shall be reviewed for administrative completeness before technical evaluation is initiated. The applicant shall be advised in writing within 30 days whether the application is complete or what additional documentation is required. Subsequent resubmittals of the application, submitted after 18 months from the date of the department's response letter, shall be considered a new application, unless an alternate timeline has been approved by

the department. The Part B application will not be evaluated until an administratively complete application is received.

3. The administratively complete application will be coordinated with other state agencies according to the nature of the facility. The comments received shall be considered in the permit review by the department. The application will be evaluated for technical adequacy and regulatory compliance. In the course of this evaluation, the department may require the applicant to provide additional information. At the end of the evaluation, the department will notify the applicant that the application is technically adequate and in regulatory compliance, or that the department intends to deny the application.

4. The procedures addressing the denial are contained in 9VAC20-81-550.

E. Permit issuance.

1. If the application is found to be technically adequate and in full compliance with this chapter, a draft permit shall be developed by the department.

2. Copies of the draft permit will be available for viewing at the applicant's place of business or at the regional office of the department, or both, upon request. A notice announcing the beginning of the public comment period and the availability of the draft permit shall be made in a newspaper with general circulation in the area of the facility. A copy of the notice of availability will be provided to the chief administrative officer of all cities and counties that are contiguous to the host community.

3. If the application is for a new landfill or an increase in landfill capacity (includes expansion), then the department shall hold a public hearing and the notice in subdivision 2 of this subsection will include such information.

4. For any application (other than subdivision 3 of this subsection), the notice shall notify the public of the 30 day public comment period and shall include the opportunity to request a public hearing. The department shall hold a public hearing on the draft permit whenever the department finds, on the basis of requests, that:

- a. There is a significant public interest in the issuance, denial, modification, or revocation of the permit in question;
- b. There are substantial, disputed issues relevant to the issuance, denial, modification, or revocation of the permit in question; and
- c. The action requested is not, on its face, inconsistent with, or in violation of, these regulations, the Waste Management Act (§ 10.1-1400 et seq. of the Code of Virginia), or federal law or regulations.

5. The department also may hold a public hearing when it is believed that such a hearing might clarify one or more issues involved in a permit decision.

6. If a public hearing is to be held, the department shall convene it 30 days or more after the notice is published in the local newspaper. The public hearing shall be conducted within the local government jurisdiction of the facility. A comment period shall extend for a 15-day period after the conclusion of the public hearing.

7. A decision to permit, to deny a permit, or to modify the draft permit shall be rendered by the director within 90 days of the close of the hearing comment period.

8. The permit applicant and the persons who commented during the public participation period shall be notified in writing of the decision on the draft permit. That decision may include denial of the permit (see also 9VAC20-81-550), issuance of the permit as drafted, or modification of the draft permit and issuance.

9. No permit for a new solid waste management facility nor any modification to a permit allowing a facility expansion or an increase in capacity shall be issued until the director has made a written determination, after an investigation and analysis of the potential human health, environmental, transportation infrastructure, and transportation safety impacts and needs and an evaluation of comments by the host local government, other local governments and interested persons, that (i) the proposed facility, expansion, or increase protects present and future human health and safety and the environment; (ii) there is a need for the additional capacity; (iii) sufficient infrastructure will exist to safely handle the waste flow; (iv) the increase is consistent with locality imposed or state-imposed daily disposal limits; (v) the public interest will be served by the proposed facility's operation or the expansion or increase in capacity of a facility; and (vi) the proposed solid waste management facility, facility expansion, or additional capacity is consistent with regional and local solid waste management plans developed pursuant to § 10.1-1411 of the Code of Virginia.

10. For nonhazardous industrial solid waste management facilities owned or operated by the generator of the waste managed at the facility, and that accept only waste generated by the facility owner or operator the following determination shall apply in lieu of subdivision 9 of this subsection. No new permit for a nonhazardous industrial solid waste management facility that is owned or operated by the generator of the waste managed at the facility, and that accepts only waste generated by the facility owner or operator, shall be issued until the director has determined, after investigation and evaluation of comments by the local government, that the proposed facility poses no substantial present or potential danger to human health or the environment. The department shall hold a public hearing within the county, city, or town where the facility is to be located prior to the issuance of any such permit for the management of nonhazardous industrial solid waste.

11. Where either subdivision 9 or 10 of this subsection apply, the director may request updated information during the review of the permit application if the information on which the director's determination is based is no longer current. If, based on the analysis of the materials presented in the permit application, the determination required in § 10.1-1408.1 of the Code of Virginia cannot be made, the application will be denied in accordance with 9VAC20-81-560 A 6.

12. Any permit for a new sanitary landfill and any permit modification authorizing expansion of an existing sanitary landfill shall incorporate the conditions required for a disposal capacity guarantee in § 10.1-1408.1 of the Code of Virginia. This provision does not apply to permit applications from one or more political subdivisions that will only accept waste from within those political subdivisions' jurisdiction or municipal solid waste generated within other political subdivisions pursuant to an interjurisdictional agreement.

9VAC20-81-460. Part A permit application.

The following information shall be included in the Part A permit application for all solid waste management facilities unless otherwise specified in this section. All plans and drawings of the Part A application shall be certified by a professional engineer or professional geologist.

A. The Part A permit application consists of a letter stating the type of the facility for which the permit application is made and the certification required in subsection I of this section. The applicant shall submit the completed DEQ Form SW PTA (Part A Permit Application Form) and all required information and attachments as detailed in this section.

B. A key map of the Part A permit application, delineating the general location of the proposed facility, shall be prepared and attached as part of the application. The key map shall be plotted on a seven and one-half minute United States Geological Survey topographical quadrangle. The quadrangle shall be the most recent revision available, shall include the name of the quadrangle and shall delineate a minimum of one mile from the perimeter of the proposed facility boundaries. One or more maps may be utilized where necessary to insure clarity of the information submitted.

C. A vicinity map shall be prepared and attached as part of the application. This vicinity map shall have a minimum scale of one inch equals 200 feet (1" = 200') and shall delineate an area of 500 feet from the perimeter of the property line of the proposed facility. A vicinity map may be prepared with a reduced scale if it does not fit in a sheet with the required minimum scale and multiple sheets may be used to meet the requirement of minimum scale. The vicinity maps may be an enlargement of a United States Geological Survey topographical quadrangle or a recent aerial photograph. Notes may be provided in the map if one or more of the following are not present within the delineated area. The vicinity map shall depict the following:

1. All homes, buildings, or structures including the layout of the buildings that will compose the proposed facility;
2. The surveyed boundaries for the property boundary, facility boundary, and waste management boundary, and the acreages within these boundaries;
3. The limits of the actual disposal operations within the boundaries of the proposed facility;
4. Lots and blocks taken from the tax map for the site of the proposed facility and all contiguous properties;
5. The base floodplain, where it passes through the map area; or, otherwise, a note indicating the expected flood occurrence period for the area;
6. Existing land uses and zoning classification;
7. All water supply wells, springs or intakes, both public and private;
8. All utility lines, pipelines or land-based facilities (including mines and wells); and
9. All parks, recreation areas, surface water bodies, dams, historic areas, wetlands areas, monument areas, cemeteries, wildlife refuges, unique natural areas, or similar features.

D. Any applicant must demonstrate legal control over the site for the permit life.

E. For solid waste disposal facilities regulated under Part III (9VAC20-81-100 et seq.), site hydrogeologic and geotechnical reports by professional geologist or professional engineer.

1. The site investigation for a proposed landfill facility shall provide information regarding the geotechnical and hydrogeologic conditions at the site to allow a reasonable determination of the usefulness of the site for development as a landfill. The geotechnical exploration efforts shall be designed to provide information regarding the availability and suitability of onsite soils for use in the various construction phases of the landfill including liner, cover, drainage material, and cap. The hydrogeologic information shall be sufficient to determine the characteristics of the uppermost aquifer underlying the facility. Subsurface investigation programs conducted shall meet the minimum specifications here.

a. Borings shall be located to identify the uppermost aquifer within the proposed facility boundary, determine the ability to perform groundwater monitoring at the site, and provide data for the evaluation of the physical properties of soils and soil availability. Borings completed for the proposed facility shall be sufficient in number and depth to identify the thickness of the uppermost aquifer and the presence of any significant underlying impermeable zone in the waste management boundary. Impermeable zone shall not be fully penetrated within the anticipated fill areas, whenever possible. The number of borings shall be at a minimum in accordance with Table 5.1 as follows:

Table 5.1	
Waste Management Boundary Acreage	Total Number of Borings
Less than 10	4
10 - 49	8
50 - 99	14
100 - 200	20
More than 200	24 + 1 boring for each additional 10 acres

b. The department reserves the right to require additional borings in areas in which the number of borings required by Table 5.1 is not sufficient to describe the geologic formations and groundwater flow patterns below the proposed solid waste disposal facility.

c. In highly uniform geological formations, the number of borings may be reduced, as approved by the department.

d. The borings shall employ a grid pattern, wherever possible, such that there is, at a minimum, one boring in each major geomorphic feature. The borings pattern shall enable the development of detailed cross sections through the proposed landfill site.

e. Subsurface data obtained by borings shall be collected by standard soil sampling techniques. Diamond bit coring, air rotary drilling, or other appropriate methods, or a combination of methods shall be used as appropriate to characterize competent bedrock. The borings shall be logged from the surface to the lowest elevation (base grade) or to bedrock, whichever is shallower, according to standard practices and procedures. In addition, the borings required by Table 5.1 shall be performed on a continuous basis for the first 20 feet below the lowest elevation of the solid waste disposal facility or to the bed rock. Additional samples as determined by the professional geologist or professional engineer shall be collected at five-foot intervals thereafter.

f. Excavations, test pits, and geophysical methods may be employed to supplement the soil boring investigation.

g. At a minimum, four of the borings shall be converted to water level observations wells, well nests, piezometers, or piezometer nests to allow determination of the rate and direction of groundwater flow across the site. All groundwater monitoring points or water level measurement points shall be designed to allow proper abandonment by backfilling with an impermeable material. The total number of wells or well nests shall be based on the complexity of the geology of the site.

h. Field analyses shall be performed in representative borings to determine the in situ hydraulic conductivity of the uppermost aquifer.

i. All borings not to be utilized as permanent monitoring wells, and wells within the active solid waste disposal area, shall be sealed and excavations and test pits shall be backfilled and properly compacted to prevent possible paths of leachate migration. Boring sealing procedures shall be documented in the hydrogeologic report.

2. The geotechnical and hydrogeologic reports shall at least include the following principal sections:

a. Field procedures. Boring records and analyses from properly spaced borings in the facility portion of the site. Final boring logs shall be submitted for each boring, recording soils or rock conditions encountered. Each log shall include the type of drilling and sampling equipment, date the boring was started, date the boring was finished, a soil or rock description in accordance with the United Soil Classification System or the Rock Quality Designation, the method of sampling, the depth of sample collection, the water levels encountered, and the Standard Penetration Test blow counts, if applicable. Boring locations and elevations shall be surveyed with a precision of 0.01 foot. At least one surveyed point shall be indelibly marked by the surveyor on each well. All depths of soil and rock as described within the boring log shall be corrected to National Geodetic Vertical Datum, if available.

b. Geotechnical interpretations and report including complete engineering description of the soil units underlying the site.

(1) Soil unit descriptions shall include estimates of soil unit thickness, continuity across the site, and genesis. Laboratory determination of the soil unit's physical properties shall be discussed.

(2) Soil units that are proposed for use as a drainage layer, impermeable cap, or impermeable liner material shall be supported by laboratory determinations of the remolded permeability. Remolded hydraulic conductivity tests require a

Proctor compaction test (ASTM D698) soil classification liquid limit, plastic limit, particle size distribution, specific gravity, percent compaction of the test sample, remolded density and remolded moisture content, and the percent saturation of the test sample. Proctor compaction test data and hydraulic conductivity test sample data shall be plotted on standard moisture-density test graphs.

(3) The geotechnical report shall provide an estimate of the available volume of materials suitable for use as liner, cap, and drainage layer. It shall also discuss the anticipated uses of the onsite materials, if known.

c. Hydrogeologic report.

(1) The report shall include water table elevations, direction, and calculated rate of groundwater flow and similar information on the hydrogeology of the site. All raw data shall be submitted with calculations.

(2) The report shall contain a discussion of field test procedures and results, laboratory determinations made on undisturbed samples, recharge areas, discharge areas, adjacent or areal usage, and typical radii of influence of pumping wells.

(3) The report shall also contain a discussion of the regional geologic setting, the site geology, and a cataloging and description of the uppermost aquifer from the site investigation and from referenced literature. The geologic description shall include a discussion of the prevalence and orientation of fractures, faults, and other structural discontinuities, and presence of any other significant geologic features. The aquifer description shall address homogeneity, horizontal and vertical extent, isotropy, the potential for groundwater remediation, if required, and the factors influencing the proper placement of a groundwater monitoring network.

(4) The report shall include a geologic map of the site prepared from one of the following sources as available, in order of preference:

(a) Site specific mapping prepared from data collected during the site investigation;

(b) Published geologic mapping at a scale of 1:24,000 or larger;

(c) Published regional geologic mapping at a scale of 1:250,000 or larger; or

(d) Other published mapping.

(5) At least two generally orthogonal, detailed site specific cross sections, which shall describe the geologic formations identified by the geologic maps prepared in accordance with subdivision 2 c (4) of this subsection at a scale that clearly illustrates the geologic formations, shall be included in the hydrogeologic report. Cross sections shall show the geologic units, approximate construction of existing landfill cells base grades, water table, surficial features, and bedrock along the line of the cross section. Cross section locations shall be shown on an overall facility map.

(6) Potentiometric surface maps for the uppermost aquifer that define the groundwater conditions encountered below the proposed solid waste disposal facility area based upon stabilized groundwater elevations. Potentiometric surface maps shall be prepared for each set of groundwater elevation data available. The applicant shall include a discussion of the effects of site modifications, seasonal variations in precipitation, and existing and future land uses of the site on the potentiometric surface.

(7) If a geological map or report from either the Department of Mines, Minerals, and Energy or the U.S. Geological Survey is published, it shall be included.

F. For solid waste management facilities regulated under Part IV (9VAC20-81-300 et seq.) of this chapter:

1. A cataloging and description of aquifers, geological features or any similar characteristic of the site that might affect the operation of the facility or be affected by that operation.
2. If a geological map or report from either the Department of Mines, Minerals, and Energy or the U.S. Geological Survey is published, it shall be included.

G. For a new sanitary landfill or for an increase in daily disposal limit, an adequacy report prepared by the Virginia Department of Transportation or other responsible agency. As required under §10.1-1408.4 A 1 of the Code of Virginia, the report will address the adequacy of transportation facilities that will be available to serve the landfill, including daily travel routes and traffic volumes that correlate with the daily disposal limit, road congestion, and highway safety. The department may determine an adequacy report is not required for small increases in the daily disposal limit.

H. For a new sanitary landfill or an expansion of an existing sanitary landfill or an increase in capacity by expanding an existing facility vertically upward, a Landfill Impact Statement (LIS).

1. A report must be provided to the department that addresses the potential impact of the landfill on parks, recreational areas, wildlife management areas, critical habitat areas of endangered species as designated by applicable local, state, or federal agencies, public water supplies, marine resources, wetlands, historic sites, fish and wildlife, water quality, and tourism. This report shall comply with the statutory requirements for siting landfills in the vicinity of public water supplies or wetlands as set forth in §§ 10.1-1408.4 and 10.1-1408.5 of the Code of Virginia.
2. The report will include a discussion of the landfill configuration and how the facility design addresses any impacts identified in the report required under subdivision 1 of this subsection.
3. The report will identify all of the areas identified under subdivision 1 of this subsection that are within five miles of the facility.

I. For a new facility or an expansion of an existing facility, or an increase in capacity by expanding an existing facility vertically upward, a signed statement by the applicant that he has sent written notice to all adjacent property owners or occupants that he intends to develop a SWMF or expand laterally or vertically upward of an existing facility on the site, a copy of the notice and the names and addresses of those to whom the notices were sent.

J. The total capacity of the solid waste management facility.

K. One or more of the following indicating that the public interest would be served by a new facility or a facility expansion, which includes:

1. Cost effective waste management for the public within the service area comparing the costs of a new facility or facility expansion to waste transfer, or other disposal options;
2. The facility provides protection of human health and safety and the environment;

3. The facility provides alternatives to disposal including reuse or reclamation;
4. The facility allows for the increased recycling opportunities for solid waste;
5. The facility provides for energy recovery or the subsequent use of solid waste, or both, thereby reducing the quantity of solid waste disposed;
6. The facility will support the waste management needs expressed by the host community; or
7. Any additional factors that indicate that the public interest would be served by the facility.

9VAC20-81-470. Part B permit application for solid waste disposal facilities.

Part B permit application requirements for all solid waste disposal facilities regulated under Part III (9VAC20-81-100 et seq.) are contained in this section. The Part B applications shall include the following requirements and documentation:

A. Plans submitted as part of the Part B application shall include the following:

1. Design plans. Design plans shall be certified by a professional engineer and shall consist of, at least, the following:
 - a. A title sheet indicating the project title, who prepared the plans, the person for whom the plans were prepared, a table of contents, and a location map showing the location of the site and the area to be served.
 - b. An existing site conditions plans sheet indicating site conditions prior to development.
 - c. A base grade plan sheet indicating site base grades or the appearance of the site if it were excavated in its entirety to the base elevation, before installation of any engineering modifications or the beginning of any filing.
 - d. An engineering modification plan sheet indicating the appearance of the site after installation of engineering modifications. More than one plan sheet may be required for complicated sites. This plan is required only for those sites with engineering modifications.
 - e. A final site topography plan sheet indicating the appearance of the site, and final contours of the site at closing including the details necessary to prepare the site for long-term care.
 - f. A series of phasing plan sheets showing the progression of site development through time. At a minimum, a separate plan shall be provided for initial site preparations and for each subsequent major phase or new area where substantial site preparation must be performed. Each such plan shall include a list of construction items and quantities necessary to prepare the phase indicated.
 - g. A site monitoring plan showing the location of all devices for the monitoring of leachate production, groundwater quality, and gas production and venting. This plan shall include a table indicating the parameters to be monitored for the frequency of monitoring before and during site development. The groundwater monitoring plan shall include information as applicable under 9VAC20-81-250 or 9VAC20-81-260.
 - h. A series of site cross-sections shall be drawn perpendicular and parallel to the site base line at a maximum distance of 500 feet between cross-sections and at points of grade break and important construction features. The location of the cross-sections shall be shown on the plan sheets and the

section labeled using the site grid system. Where applicable, each cross-section shall show existing, proposed base and final grades; soil borings and monitoring wells that the section passes through or is adjacent to; soil types, bedrock and water table; leachate control, collection, and monitoring systems; limits of filling for each major waste type; drainage control structures; access roads and ramps on the site parameter and within the active fill area; the filling sequence or phases; and other site features.

i. Detailed drawings and typical sections for drainage control structures, access roads, fencing, leachate and gas control systems, and monitoring devices, buildings, signs, and other construction details.

j. Plan sheets shall include:

(1) A survey grid with base lines and bench marks to be used for field control.

(2) Limits of filling for each major waste type or fill area.

(3) All drainage patterns and surface water drainage control structures both within the actual fill area and at the site perimeter. Such structures may include berms, ditches, sedimentation basins, pumps, sumps, culverts, pipes, inlets, velocity breaks, sodding, erosion matting, or other methods of erosion control.

(4) Ground surface contours at the time represented by the drawing. Spot elevations shall be indicated for key features.

(5) Areas to be cleared and grubbed and stripped of topsoil.

(6) Borrow areas for liner materials, gas venting materials, berms, roadway construction, daily cover, and final cover.

(7) All soil stockpiles including daily and final cover, topsoil, liner materials, gas venting materials, and other excavation.

(8) Access roads and traffic flow patterns to and within the active fill area.

(9) All temporary and permanent fencing.

(10) The methods of screening such as berms, vegetation, or special fencing.

(11) Leachate collection, control, storage, and treatment systems that may include pipes, manholes, trenches, berms, collection sumps, storage units, pumps, risers, liners, and liner splices.

(12) Gas, leachate, and groundwater monitoring devices and systems.

(13) Severe weather solid waste disposal areas.

(14) Support buildings, scale, utilities, gates, and signs.

(15) Special waste handling areas.

(16) Construction notes and references to details.

(17) Other site features.

2. Closure plan. A detailed closure plan be prepared and submitted. Such a plan shall be prepared in two parts, one reflecting those measures to be accomplished at the midpoint of the permit period, and the other when the useful life of the landfill is reached. The plan shall show how the facility will be closed to meet the requirements of 9VAC20-81-160 and 9VAC20-81-170. The plan shall include the procedures to be followed in closing the site, sequence of closure, time schedules, final plans of completion of closure to include final contours, and long-term care plan sheets showing the site at the completion of closing and indicating those items anticipated to be performed during the period of long-term care for

the site. The plans shall include a table listing the items and the anticipated schedule for monitoring and maintenance. In many instances this information can be presented on the final site topography sheet.

3. Postclosure plan. A postclosure care plan containing long-term care information including a discussion of the procedures to be utilized for the inspection and maintenance of: run-off control structures; settlement; erosion damage; gas and leachate control facilities; monitoring for gas, leachate, and groundwater; and other long-term care needs.

B. A design report shall be submitted, which shall include supplemental discussions and design calculations, to facilitate department review and provide supplemental information including the following information:

1. The design report shall identify the project title; engineering consultants; site owner, permittee and operator; proposed permitted acreage; hours of operation; wastes to be accepted; site life; design capacity; and the daily disposal limit. It shall also identify any variances desired by the applicant.

2. A discussion of the basis for the design of the major features of the site, such as traffic routing, base grade and relationships to subsurface conditions, anticipated waste types and characteristics, phases development, liner design, leachate management system design, facility monitoring, and similar design features shall be provided. A list of the conditions of site development as stated in the department determination of site feasibility and the measures taken to meet the conditions shall be included. A discussion of all calculations, such as refuse-cover balance computations, stockpile sizing estimates, estimate of site life, and run-off and leachate volume estimates shall be included. The calculations shall be summarized with the detailed equations presented in an appendix.

3. Specifications, including detailed instructions to the site operator for all aspects of site construction.

a. Initial site preparations including specifications for clearing and grubbing, topsoil stripping, other excavations, berm construction, drainage control structures, leachate collection system, access roads and entrance, screening, fencing, groundwater monitoring, and other special design features.

b. A plan for initial site preparation including a discussion of the field measurements, photographs to be taken, sampling and testing procedures to be utilized to verify that the in-field conditions encountered were the same as those defined in the feasibility report, and to document that the site was constructed according to the engineering plans and specifications submitted for department approval.

C. Financial assurance documentation. When required by the Financial Assurance Regulations of Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70), the applicant shall provide the completed documentation to demonstrate compliance with those regulations; proof of financial responsibility must be for the entity identified in accordance with 9VAC20-81-450 B 10.

D. DEQ Form SW PTB (Part B Permit Application Form). The applicant shall submit a completed DEQ Form SW PTB.

9VAC20-81-480. Part B permit application requirements for other solid waste management facilities.

Owners or operators of facilities who do not dispose of solid wastes onsite and who will remove all solid wastes or solid waste residues at closing, will use the application procedures of this section. The following information is required in a Part B permit application:

A. Design plans.

Design plans shall be prepared by a professional engineer. The plans shall demonstrate compliance with the applicable portions of this chapter, as applicable, and include at least the following:

1. Existing site conditions plans sheet indicating site conditions prior to development.
2. Engineering modification plan sheet indicating the appearance of the site after installation of engineering modifications. More than one plan sheet may be required for complicated sites. This plan is required only for those sites with engineering modifications.
3. Phasing plan sheets showing the progression of site development through time. At a minimum, a separate plan shall be provided for initial site preparations and for each subsequent major phase or new area where substantial site preparation must be performed. Each such plan shall include a list of construction items and quantities necessary to prepare the phase indicated.
4. Design drawings of the specific solid waste management processes, when applicable. For waste to energy, thermal treatment, and incinerator facilities, the design drawings of the solid waste management facilities to include:
 - (1) Profile and plan views of all structures and enclosures showing dimensions. Plan views showing building setbacks, side and rear distances between the proposed structure and other existing or proposed structures, roadways, parking areas, and site boundaries;
 - (2) Interior floor plans showing the layout, profile view and dimensions of the processing lines, interior unloading, sorting, storage, and loading areas as well as other functional areas;
 - (3) A plan identifying, locating and describing utilities that will service the facility including, but not limited to, the storm water drainage system, sanitary sewer system, water supply system, and energy system; interface of the proposed facility with the existing utility systems.
5. When applicable, the following information shall be presented on plan sheets:
 - a. All information on existing site conditions map unless including this information leads to confusion with the data intended for display.
 - b. A survey grid with base lines and monuments to be used for field control.
 - c. All drainage patterns and surface water drainage control structures both within the area and at the site perimeter to include berms, ditches, sedimentation basins, pumps, sumps, culverts, pipes, inlets, velocity breaks, sodding, erosion matting, or other methods of erosion control.
 - d. Access roads and traffic flow patterns to and within:
 - (1) The storage and transfer areas of waste to energy, thermal treatment, and incinerator facilities.
 - (2) The active fill area of all other facilities.

- e. All temporary and permanent fencing.
- f. The methods of screening such as berms, vegetation, or special fencing.
- g. Wastewater or leachate collection, control and treatment systems which may include pipes, manholes, trenches, berms, collection sumps or basins, pumps, risers, liners, and liner splices.
- h. Special waste handling areas.
- i. Construction notes and references to details.
- j. Other site features.

6. Detailed drawings and typical sections for drainage control structures, access roads, fencing, buildings, signs, and other construction details.

B. A design report for the facility is required and will provide the technical details and specifications necessary to support the design plans consisting of, at least, the following information:

1. For waste to energy, thermal treatment, and incinerator facilities:

a. The design report shall identify the project title; engineering consultants; site owner, licensee and operator; site life and capacity; municipalities, industries, and collection and transportation agencies served; and waste types to be disposed. It shall also identify any exemptions desired by the applicant.

b. The design capacity specifications shall include, at a minimum, the following information:

(1) The process rate of the facility, in both tons per day and tons per hour;

(2) The expected short-term and projected future long-term daily loadings;

(3) The designation of normal loading, unloading and storage areas, including capacities in cubic yards and tons. Description of the time such areas can be practically used, based on expected short-term daily loadings;

(4) The designation of emergency loading, unloading, storage, or other disposal capabilities to be used when facility system down time exceeds 24 hours;

(5) The designation of alternate management facilities or plans for transfer of stored waste in the event facility system down time exceeds 72 hours;

c. The design specifications for process residues to include the following:

(1) The expected daily quantity of waste residue generations;

(2) The proposed ultimate disposal location for all facility-generated waste residues including, but not limited to, ash residues and bypass material, residues resulting from air pollution control devices, and the proposed alternate disposal locations for any unauthorized waste types, which may have been unknowingly accepted. The schedule for securing contracts for the disposal of these waste types at the designated locations shall be provided;

(3) A descriptive statement of any materials use, reuse, or reclamation activities to be operated in conjunction with the facility, either on the incoming solid waste or the ongoing residue;

d. A descriptive statement and detailed specification of the proposed onsite and offsite transportation system intended to service vehicles hauling waste to the facility for processing, and vehicles removing reclaimed materials and or process residues from the facility. Onsite parking, access and exit points,

and the mechanisms or features that will be employed to provide for an even flow of traffic into, out of, and within the site, shall be identified.

e. An appendix to the design plan shall be submitted that shall include any additional data not previously presented, calculations, material specifications, operating agreements, wastewater treatment agreements, documents related to long-term care funding, and other appropriate information.

2. For all other facilities:

a. The design report shall identify the project title; engineering consultants; site owner, licensee and operator; site life and capacity; municipalities, industries and collection and transportation agencies served; and waste types and quantities to be disposed. It shall also identify any exemptions desired by the applicant. The specifications shall include, at a minimum, the following information:

(1) Design and construction specifications for the site shall be presented, including detailed instructions to the site operator for all aspects of site construction and development. References to specifications on the plan sheet shall be pointed out as well as additional instructions included, where appropriate.

(2) The design report specifications shall include access roads and entrance, screening, fencing, and other special design features.

b. An appendix shall be submitted that shall include any additional data not previously presented, calculations, material specifications, operating agreements, leachate treatment agreements, documents related to long-term care funding, and other appropriate information.

C. When required by the Financial Assurance Regulations of Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70), the applicant shall provide the completed documentation to demonstrate compliance with those regulations; proof of financial responsibility must be for the entity identified in accordance with 9VAC20-81-450 B 10.

D. Closure plan. The applicant shall prepare and submit a detailed plan for closing any SWMF. Such a plan shall be prepared to reflect the actions required at the time of closing the facility with the maximum permitted process rate onsite. The plan shall reflect all steps necessary to isolate the facility from the environment or to remove and dispose of all solid waste and residue in the facility. The closure plan shall reflect all actions necessary for facility abandonment or uses other than for solid waste management.

E. Sound level data. When required by the director, the applicant shall survey, record, and submit background sound level data in the vicinity of the proposed facility at the time of application for a permit.

9VAC20-81-485. Operations manual requirements for solid waste management facilities.

A. Solid waste disposal facilities. An operations manual shall be prepared and maintained in the operating record. The operations manual shall include a certification page signed by a responsible official. This signature shall certify the manual meets the requirements of this chapter. This manual shall be reviewed and recertified annually (by December 31 of each calendar year) to ensure consistency with current operations and regulatory requirements, and shall be made available for review by the department upon

request. The operations manual for disposal facility operation shall contain at least the following plans:

1. An operations plan that at a minimum includes:
 - a. Explanation of how the design and construction plans will be implemented from the initial phase of operation until closure;
 - b. Municipalities, industries, and collection and transportation agencies served;
 - c. Waste types and quantities to be disposed;
 - d. Detailed instructions to the site operator regarding all aspects of site operation in order to ensure that the operational requirements of Part III (9VAC20-81-100 et seq.) of this chapter are achieved. References to specifications on the plan sheet shall be pointed out as well as additional instructions included, where appropriate. At a minimum, the plan specifications shall include:
 - (1) Daily operations including a discussion of the timetable for development, waste types accepted or excluded, inspection of incoming waste, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of any unusual waste types, methods for vector, dust and odor control, daily cleanup, direction of filling, salvaging, recordkeeping, parking for visitors and employees, monitoring, maintenance, closure of filled areas, gas and leachate control methods, backup equipment with names and telephone numbers where equipment may be obtained, and other special design features;
 - (2) Development of subsequent phases; and
 - (3) Site closing information consisting of a discussion of those actions necessary to prepare the site for long-term care and final use in the implementation of the closure plan.
2. An inspection plan that at a minimum includes:
 - a. A schedule for inspecting all applicable major aspects of facility operations necessary to ensure compliance with the requirements of Part III (9VAC20-81-100 et seq.) of this chapter.
 - b. The frequency of inspection based on the rate of potential equipment deterioration or malfunction and the probability of an adverse incident occurring if the deterioration or malfunction goes undetected between inspections. The plan shall establish the minimum frequencies for inspections required in 9VAC20-81-140. This plan shall identify areas of the facility subject to spills such as loading and unloading areas and areas in which significant adverse environmental or health consequences may result if breakdown occurs.
 - c. A schedule for inspecting monitoring, safety, and emergency equipment; security devices; and process operating and structural equipment.
 - d. The types of potential problems that may be observed during the inspection and any maintenance activities required as a result of the inspection.

3. A health and safety plan that includes description of measures to protect the facility and other personnel from injury and is consistent with the requirements of 29 CFR Part 1910.

4. An unauthorized waste control plan that includes, at a minimum, the methods to be used by the operator to prevent unauthorized disposal of hazardous wastes, bulk liquids, or other wastes not authorized for management or disposal in the facility in order to meet the requirements of 9VAC20-81-140.

5. An emergency contingency plan that includes:

a. Delineation of procedures for responding to fire, explosions, or any unplanned sudden or nonsudden releases of harmful constituents to the air, soil, or surface water;

b. Description of the actions facility personnel shall take in the event of various emergency situations;

c. Description of arrangements made with the local police and fire department that allow for immediate entry into the facility by their authorized representatives should the need arise, such as in the case of personnel responding to an emergency situation; and

d. A list of names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator for the facility. This list shall be kept up to date. Where more than one person is listed, one shall be named as primary emergency coordinator and the others shall be listed in the order in which they will assume responsibility as alternates.

6. A landscaping plan that shall:

a. Delineate existing site vegetation to be retained;

b. Discuss methods to be employed in order to ensure protection of vegetation to be retained during the clearing, grading and construction phases of the project and the supplemental vegetation to be planted; and

c. Information relating to vegetation type, location and purpose, such as for buffer, screening or aesthetics, and schedules for planting, shall accompany the plan.

B. Other solid waste management facilities. An operations manual shall be prepared and maintained in the operating record. The Operations Manual shall include a certification page signed by a responsible official. This signature shall certify the manual meets the requirements of this chapter. This manual shall be reviewed and re-certified annually (by December 31 of each calendar year) to ensure consistency with current operations and regulatory requirements and shall be made available to the department upon request. The manual for facility operation shall contain at least the following plans:

1. An operations plan that at a minimum includes:

a. An explanation of how the design and construction plans will be implemented from the initial phase of operation until closure.

b. Detailed instructions to the site operator regarding all aspects of site operation in order to ensure that the applicable operational requirements of Part IV (9VAC20-81-300 et seq.) are achieved. Daily operations including a discussion of the timetable for development, waste types accepted or excluded, typical waste handling techniques, hours of operation, traffic routing, drainage and erosion control, windy, wet and cold weather operations, fire protection equipment, manpower, methods for handling of any

unusual waste types, methods for vector, dust and odor control, daily cleanup, salvaging, record keeping, parking for visitors and employees, monitoring, backup equipment with names and telephone numbers where equipment may be obtained, and other special design features. The daily operations section of the operations manual may be developed as a removable section to improve accessibility for the site operator.

c. Development of subsequent phases of the facility, if applicable.

d. Site closing information consisting of a discussion of those actions necessary to prepare the site for long-term care and final use in the implementation of the closure plan.

2. An inspection plan that at a minimum includes:

a. A schedule for inspecting all applicable major aspects of facility operations necessary to ensure compliance with the requirements of Part IV (9VAC20-81-300 et seq.) of this chapter.

b. The frequency of inspection shall be based on the rate of potential equipment deterioration or malfunction and the probability of an adverse incident occurring if the deterioration or malfunction goes undetected between inspections. The plan shall establish the minimum frequencies for inspections required in 9VAC20-81-140. This plan shall identify areas of the facility subject to spills such as loading and unloading areas and areas in which significant adverse environmental or health consequences may result if breakdown occurs.

c. A schedule for inspecting monitoring, safety, and emergency equipment; security devices; and process operating and structural equipment.

d. The types of potential problems that may be observed during the inspection and any maintenance activities required as a result of the inspection.

3. A health and safety plan that includes description of measures to protect the facility and other personnel from injury and is consistent with the requirements of 29 CFR Part 1910.

4. An unauthorized waste control plan that includes, at a minimum, the methods to be used by the operator to prevent unauthorized disposal of hazardous wastes, bulk liquids, or other wastes not authorized for management or disposal in the facility in order to meet the applicable requirements of 9VAC20-81-340.

5. An emergency contingency plan that includes:

a. Delineation of procedures for responding to fire, explosions, or any unplanned sudden or nonsudden releases of harmful constituents to the air, soil, or surface water;

b. Description of the actions facility personnel shall take in the event of various emergency situations;

c. Description of arrangements made with the local police and fire department that allow for immediate entry into the facility by their authorized representatives should the need arise, such as in the case of personnel responding to an emergency situation; and

d. A list of names, addresses and phone numbers (office and home) of all persons qualified to act as emergency coordinator for the facility. This list shall be kept up to date. Where more than one person is listed, one shall be

named as primary emergency coordinator and the others shall be listed in the order in which they will assume responsibility as alternates.

9VAC20-81-490. Effect of the permit.

A. A completed permit for a solid waste management facility shall be prepared at the conclusion of the procedures outlined in 9VAC20-81-450. The permit shall be prepared in detail to establish the construction requirements, monitoring requirements, operating limitations or guides, waste limitations if any, and any other details essential to the operation and maintenance of the facility and its closure. Before receipt of waste by the facility, the applicant must:

1. Notify the department, in writing, that construction has been completed; and submit to the department a letter from a professional engineer certifying that the facilities have been completed in accordance with the approved plans and specifications and is ready to begin operation. This certification letter is in addition to the CQA certification required in 9VAC20-81-130 Q 3 and must be provided by a different individual than the CQA certification. This certification letter is typically provided by the design engineer.

2. Arrange for a department representative to inspect the site and confirm that the site is ready for operation.

B. Certificate-to-Operate (CTO). Following review of a complete CQA certification and site inspection the department shall issue a CTO authorizing the facility to begin receiving waste. The facility shall not receive waste until a CTO has been issued by the department.

C. Inspections. Each facility permitted to accept solid waste requires periodic inspection and review of records and reports. Such requirements shall be set forth in the final permit issued by the department. The permit applicant by accepting the permit, agrees to the specified periodic inspections.

D. Compliance with a valid permit during its term constitutes compliance, for purposes of enforcement, with the Virginia Waste Management Act. However, a permit may be modified, revoked and reissued, or revoked for cause as set forth in 9VAC20-81-570 and 9VAC20-81-600.

E. The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.

F. The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, Commonwealth, or local law or regulations.

G. A permit may be transferred by the permittee to a new owner or operator only if the permit has been revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary. Upon presentation of the financial assurance proof required by 9VAC20-70 by the new owner, the department will release the old owner from his closure and financial responsibilities and acknowledge existence of the new permit in the name of the new owner.

H. This section provides for the approval of permits or permit modifications that include a time allowance for the permittee to achieve the new standards contained in the approved permit or permit modification.

1. The permit may specify a schedule of compliance leading to compliance with this chapter.

a. Any schedules of compliance under this subsection shall require compliance as soon as possible.

b. Except as otherwise provided, if a permit establishes a schedule of compliance that exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(1) The time between interim dates shall not exceed one year; and

(2) If the time necessary for completion of any interim requirement is more than one year and is not readily divisible into stages of completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

c. The permit shall be written to require that no later than 14 days following each interim date and the final date of compliance, a permittee shall notify the department, in writing, of his compliance or noncompliance with the interim or final requirements.

2. A permit applicant or permittee may cease conducting regulated activities (by receiving a terminal volume of solid waste, and, in case of treatment or storage facilities, closing pursuant to applicable requirements, or, in case of disposal facilities, closing and conducting postclosure care pursuant to applicable requirements) rather than continue to operate and meet permit requirements as follows:

a. If the permittee decides to cease conducting regulated activities at a specified time for a permit that has already been issued:

(1) The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

(2) The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.

b. If the decision to cease conducting regulated activities is made before the issuance of a permit whose terms will include the termination date, the permit shall contain a schedule leading to termination that will ensure timely compliance with applicable requirements.

c. If the permittee is undecided whether to cease conducting regulated activities, the director may issue or modify a permit to continue two schedules as follows:

(1) Both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date that ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;

(2) One schedule shall lead to timely compliance with applicable requirements;

(3) The second schedule shall lead to cessation of regulated activities by a date that will ensure timely compliance with applicable requirements; and

(4) Each permit containing two schedules shall include a requirement that, after the permittee has made a final decision, he shall follow the schedule leading to compliance if the decision is to continue conducting regulated

activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.

d. The applicant's decisions to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the department, such as a resolution of the board of directors of a corporation.

9VAC20-81-530. Recording and reporting required of a permittee.

A. A permit shall specify:

1. Required monitoring, including type, intervals and frequency, sufficient to yield data that are representative of the monitored activity;
2. Requirements concerning the proper use, maintenance, and installation of monitoring equipment or methods, including biological monitoring methods when appropriate; and
3. Applicable reporting requirements based upon the impact of the regulated activity and as specified in this chapter.

B. A permittee shall be subject to the following whenever monitoring is required by the permit:

1. The permittee shall retain records at the permitted facility or another location approved by the department. Records shall include all records required by the facility permit, these regulations, or other applicable regulations. Records of all required monitoring information, including all calibration and maintenance records will be maintained for at least three years from the sample or measurement date. The director may request that this period be extended. For operating landfills, records of the most recent gas and groundwater monitoring event will be maintained at the facility.
2. Records of monitoring information shall include:
 - a. The date, exact place, and time of sampling or measurements;
 - b. The individuals who performed the sampling or measurements;
 - c. The dates analyses were performed;
 - d. The individuals who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
3. Required monitoring results shall be maintained on file for inspection by the department.

C. A permittee shall be subject to the following reporting requirements:

1. Written notice of any planned physical alterations to the permitted facility shall be submitted to the department and approved before such alterations are to occur, unless such items were included in the plans and specifications approved by the department.
2. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit, shall be submitted no later than 14 days following each schedule date.
3. The permittee shall report to the department any noncompliance or unusual condition that may endanger health or environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the

time the permittee becomes aware of the circumstances. The written submission shall contain a description of the circumstances and its cause; the period of occurrence, including exact dates and times, and, if the circumstance has not been corrected, the anticipated time it is expected to continue. It shall also contain steps taken or planned to reduce, eliminate, and prevent reoccurrence of the circumstances resulting in an unusual condition or noncompliance.

D. Copies of all reports required by the permit, and records of all data used to complete the permit application must be retained by the permittee for at least three years from the date of the report or application. The director may request that this period be extended.

E. When the permittee becomes aware that he failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the director, he shall promptly submit such omitted facts or the correct information with an explanation.

9VAC20-81-550. Permit denial.

A. A permit shall be denied if:

1. The applicant fails to provide complete information required for an application;
2. The facility does not conform with the siting standards set forth for the facility in 9VAC20-81-120 or 9VAC20-81-320, unless an exemption or variance from the specific siting criteria has been granted;
3. The facility design and construction plans or operating plans, or both, fail to comply with requirements specified for the proposed type of facility unless an exemption or variance from the specific requirement has been granted;
4. The department finds that there is an adverse impact on the public health or the environment by the design, construction, or operation;
5. The applicant is not able to fulfill the financial responsibility requirements as specified in 9VAC20-70; or
6. Current information sufficient to make the determination required in §10.1-1408.1 D of the Code of Virginia has not been provided.

B. Reasons for the denial of any permit shall be provided to the applicant in writing by the director within 30 days of the decision to deny the permit.

9VAC20-81-560. Appeal of a permit denial.

A. If the department denies a permit to an applicant, the applicant shall be informed in writing of the decision and the reasons supporting the denial decision. The department shall mail the decision to the applicant by certified mail. Within 30 days of the notification date of denial of the permit, the applicant may make a written request of the director for a hearing to contest the director's decision. The hearing shall be conducted in accordance with the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

B. The director shall render a decision affirming or modifying the previous denial, and shall notify the applicant of his decision in writing. If the director's decision is adverse to the applicant, the applicant may appeal in accordance with the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

9VAC20-81-570. Revocation or suspension of permits.

A. Any permit issued by the director may be revoked when any of the following conditions exist:

1. The permit holder violates any regulation of the board or any condition of a permit where such violation poses a threat of release of harmful substances into the environment or presents a hazard to human health;
2. The solid waste management facility is maintained or operated in such a manner as to constitute an open dump or pose a substantial present or potential hazard to human health or the environment;
3. The solid waste management facility because of its location, construction, or lack of protective construction or measures to prevent pollution, constitute an open dump or poses a substantial present or potential hazard to human health or the environment;
4. Leachate or residues from the solid waste management facility used for disposal, storage, or treatment of solid waste pose a threat of contamination or pollution of the air, surface waters, or groundwater in a manner constituting an open dump or resulting in a substantial present or potential hazard to human health or the environment;
5. The person to whom the permit was issued abandons, sells, leases, or ceases to operate the facility permitted;
6. The owner or operator fails to maintain a financial assurance mechanism if required to do so by 9VAC20-70;
7. As a result of changes in key personnel, the director finds that the requirements necessary for issuance of a permit are no longer satisfied;
8. The applicant has knowingly or willfully misrepresented or failed to disclose a material fact in applying for a permit or in his disclosure statement, or any other report or certification required under this law or under the regulations of the board, or has knowingly or willfully failed to notify the director of any material change to the information in the disclosure statement;
9. Any key personnel has been convicted of any following crimes punishable as felonies under the laws of the Commonwealth or the equivalent of them under the laws of any other jurisdiction: murder; kidnapping; gambling; robbery; bribery; extortion; criminal usury; arson; burglary; theft and related crimes; forgery and fraudulent practices; fraud in the offering, sale, or purchase of securities; alteration of motor vehicle identification numbers; unlawful manufacture, purchase, use, or transfer of firearms; unlawful possession or use of destructive devices or explosives; violation of the Drug Control Act, Chapter 34 (§ 54.1-3400 et seq.) of Title 54.1 of the Code of Virginia; racketeering; or violation of antitrust laws; or has been adjudged by an administrative agency or a court of competent jurisdiction to have violated the environmental protection laws of the United States, the Commonwealth, or any other state and the director determines that such conviction or adjudication is sufficiently probative of the applicant's inability or unwillingness to operate the facility in a lawful manner, as to warrant denial, revocation, modification, or suspension of the permit. In making such determination, the director shall consider:
 - a. The nature and details of the acts attributed to key personnel;
 - b. The degree of culpability of the applicant, if any;

- c. The applicant's policy or history of discipline of key personnel for such activities;
- d. Whether the applicant has substantially complied with all rules, regulations, permits, orders, and statutes applicable to the applicant's activities in Virginia;
- e. Whether the applicant has implemented formal management controls to minimize and prevent the occurrence of such violations; and
- f. Mitigation based upon demonstration of good behavior by the applicant including, without limitation, prompt payment of damages, cooperation with investigations, termination of employment or other relationship with key personnel or other persons responsible for violations or other demonstrations of good behavior by the applicant that the director finds relevant to its decision; or

10. All postclosure care activities have been terminated by the department in accordance with 9VAC20-81-170 C.

B. Revocation and reissuance.

1. If the director finds that solid wastes are no longer being stored, treated, or disposed at a facility in accordance with department regulations, the director may revoke the permit issued for such facility and reissue it with a condition requiring the person to whom the permit was issued to provide closure and postclosure care of the facility.

2. If the director is notified by the permittee that the ownership of the facility will be transferred to a new owner or that the operation will be conducted by a new operator, the director will upon receipt of financial assurance documents required by Financial Assurance Regulations of Solid Waste Disposal, Transfer, and Treatment Facilities (9VAC20-70), revoke the original permit and reissue it to the new owner or operator.

C. Except in an emergency, a facility posing a substantial threat to public health or the environment, the director may revoke a permit only after a hearing, or a waiver of a hearing, in accordance with the Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

D. If the director summarily suspends a permit pursuant to an emergency based on subdivision 18 of § 10.1-1402 of the Virginia Waste Management Act, the director shall hold a conference pursuant to § 2.2-4019 of the Virginia Administrative Process Act, within 48 hours to consider whether to continue the suspension pending a hearing to modify or revoke the permit, or to issue any other appropriate order. Notice of the hearing shall be delivered at the conference or sent at the time the permit is suspended. Any person whose permit is suspended by the director shall cease activity for which permit was issued until the permit is reinstated by the director or by a court.

9VAC20-81-580. Appeal of revocation of a permit.

If the director suspends, revokes or revokes and reissues a permit, the permittee may appeal in accordance with Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

9VAC20-81-600. Modification of permits.

A. Permits may be modified at the request of any interested person or upon the director's initiative. However, permits may only be modified for the reasons specified in

subsections E and F of this section. All requests shall be in writing and shall contain facts or reasons supporting the request. Any permit modification authorizing expansion of an existing sanitary landfill shall incorporate the conditions required for a disposal capacity guarantee in § 10.1-1408.1 P of the Code of Virginia. This provision does not apply to permit applications from one or more political subdivisions that will only accept waste from within those political subdivisions' jurisdiction or municipal solid waste generated within other political subdivisions pursuant to an interjurisdictional agreement.

B. If the director decides the request is not justified, he shall send the requester a response providing justification for the decision.

C. If the director tentatively decides to modify, he shall prepare a draft permit incorporating the proposed changes. The director may request additional information and may require the submission of an updated permit application. In a permit modification under subsection E of this section, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect. During any modification proceeding the permittee shall comply with all conditions of the existing permit until the modified permit is issued.

D. When the director receives any information, he may determine whether or not one or more of the causes listed for modification exist. If cause exists, the director may modify the permit on his own initiative subject to the limitations of subsection E of this section and may request an updated application if necessary. If a permit modification satisfies the criteria in subsection F of this section for minor modifications, the permit may be modified without a draft permit or public review. Otherwise, a draft permit shall be prepared and other appropriate procedures followed.

E. Causes for modification. The director may modify a permit upon his own initiative or at the request of a third party:

1. When there are material and substantial alterations or additions to the permitted facility or activity that occurred after permit issuance that justify the application of permit conditions that are different or absent in the existing permit;
2. When there is found to be a possibility of pollution causing significant adverse effects on the air, land, surface water, or groundwater;
3. When an investigation has shown the need for additional equipment, construction, procedures and testing to ensure the protection of the public health and the environment from adverse effects;
4. If the director has received information pertaining to circumstances or conditions existing at the time the permit was issued that was not included in the administrative record and would have justified the application of different permit conditions, the permit may be modified accordingly if in the judgment of the director such modification is necessary to prevent significant adverse effects on public health or the environment;
5. When the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;
6. When the director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or material shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy;

7. When a modification of a closure plan is required under 9VAC20-81-160 or 9VAC20-81-360 and the permittee has failed to submit a permit modification request within the specified period;

8. When the corrective action program specified in the permit under 9VAC20-81-260 has not brought the facility into compliance with the groundwater protection standard within a reasonable period of time; or

9. When cause exists for revocation under 9VAC20-81-570 and the director determines that a modification is more appropriate.

F. Permit modification at the request of the permittee.

TABLE 5.2	
PERMIT MODIFICATIONS	
MAJOR	1. Implementation of a groundwater corrective action program as required by 9VAC20-81-260
	2. Change in the remedy applied as part of the groundwater corrective action program
	3. Groundwater monitoring plan for an existing facility where no written plan has previously been provided
	4. Changes to the design of final closure cover
	5. Landfill mining
	6. Reduction in the postclosure care period
	7. Changes in postclosure use of the property with disturbance of cover
	8. All new or modifications of a leachate collection tank or a leachate collection surface impoundment
	9. Addition of new landfill units
	10. Expansion or increase in capacity
	11. Increase in daily disposal limit
	12. Addition or modification of a liner, leachate collection system, leachate detection system
	13. Incorporation or modification of a Research, Development, and Demonstration Plan
MINOR	Any change not specified as major modification (above) or a permittee change (below)
PERMITTEE CHANGE	1. Correction of typographical errors
	2. Equipment replacement or upgrade with functionally equivalent components
	3. Replacement of an existing leachate tank with a tank that meets the same design standards and has a capacity within +/-10% of the replaced tank

	4. Replacement with functionally equivalent, upgrade, or relocation of emergency equipment
	5. Changes in name, address, or phone number of contact personnel
	6. Replacement of an existing well that has been damaged or rendered nonoperable, without change to location, design, or depth of the well
	7. Changes to the expected year of final closure, where other permit conditions are not changed
	8. Changes in postclosure use of the property, without disturbance of the cover
	9. Modification of a leachate tank management practice

1. Permittee change. Items listed under Permittee Change in Table 5.2 may be implemented without approval of the department. If a permittee changes such an item, the permittee shall:

- a. Notify the department of the change at least 14 calendar days before the change is put into effect, indicating the affected permit conditions; and
- b. Notify the governing body of the county, city, or town in which the facility is located, within 90 calendar days after the change is put into effect.

2. Minor modifications.

- a. Minor modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment.
- b. Minor modifications may be requested for changes that will result in a facility being more protective of human health and the environment or equivalent to the standards contained in this chapter, unless otherwise noted in Table 5.2. The request for such a minor permit modification will be accompanied by a description of the desired change and an explanation of the manner in which the health and environment will be protected in a greater degree than required by the chapter.
- c. Minor permit modifications may be made only with the prior written approval of the department. The permittee shall notify the department that a minor modification is being requested. Notification of the department shall be provided by certified mail or other means that establish proof of delivery. This notice shall specify the changes being made to permit conditions or supporting documents referenced by the permit and shall include an explanation of why they are necessary. Along with the notice, the permittee shall provide the applicable information required by 9VAC20-81-460 and 9VAC20-81-470 or as required by 9VAC20-81-480.
- d. The permittee shall send a notice of the modification to the governing body of the county, city or town in which the facility is located. This notification shall be made within 90 days after the department approves the request.

3. Major modifications.

- a. Major modifications substantially alter the facility or its operation. Major modifications are listed in Table 5.2.

b. The permittee shall submit a modification request to the department that:

- (1) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit;
- (2) Identifies that the alteration is a major modification;
- (3) An explanation of why the modification is needed; and
- (4) Provides the applicable information required by 9VAC20-81-460 and 9VAC20-81-470 or as required by 9VAC20-81-480.

c. No later than 90 days after receipt of the notification request, the director will determine whether the information submitted under subdivision 3 b (4) of this subsection is adequate to formulate a decision. If found to be inadequate, the permittee will be requested to furnish additional information within 30 days of the request by the director to complete the modification request record. The 30-day period may be extended at the request of the applicant. After the completion of the record, the director will either:

- (1) Approve the modification request, with or without changes, and draft a permit modification accordingly;
- (2) Deny the request; or
- (3) Approve the request, with or without changes, as a temporary authorization having a term of up to 180 days in accordance with subdivision 3 of this subsection.

d. If the director proposes to approve the permit modification, he will proceed with the permit issuance in accordance with 9VAC20-81-450 E.

e. The director may deny or change the terms of a major permit modification request under subdivision ~~[F-2-b]~~ F 3 b of this section for the following reasons:

- (1) The modification request is incomplete;
- (2) The requested modification does not comply with the appropriate requirements of Part III (9VAC20-81-100 et seq.) or Part IV (9VAC20-81-300 et seq.) of this chapter or other applicable requirements; or
- (3) The conditions of the modification fail to protect human health and the environment.

4. Temporary authorizations.

a. Upon request of the permittee, the director may, without prior public notice and comment, grant the permittee a temporary authorization in accordance with the requirements of subdivision 4 of this subsection. Temporary authorizations shall have a term of not more than 180 days.

b. (1) The permittee may request a temporary authorization for any major modification that meets the criteria in subdivision 4 c (2) (a) or (b) of this subsection; or that meets the criteria in subdivision 4 c (2) (c) and (d) of this subsection and provides improved management or treatment of a solid waste already listed in the facility permit.

(2) The temporary authorization request shall include:

- (a) A description of the activities to be conducted under the temporary authorization;
- (b) An explanation of why the temporary authorization is necessary; and

- (c) Sufficient information to ensure compliance with Part III (9VAC20-81-100 et seq.) or Part IV (9VAC20-81-300 et seq.) standards.
 - (3) The permittee shall send a notice about the temporary authorization request to all persons on the facility mailing list. This notification shall be made within seven days of submission of the authorization request.
 - c. The director shall approve or deny the temporary authorization as quickly as practical. To issue a temporary authorization, the director shall find:
 - (1) The authorized activities are in compliance with the standards of Part III (9VAC20-81-100 et seq.) or Part IV (9VAC20-81-300 et seq.) of this chapter.
 - (2) The temporary authorization is necessary to achieve one of the following objectives before action is likely to be taken on an modification request:
 - (a) To facilitate timely implementation of closure or corrective action activities;
 - (b) To prevent disruption of ongoing waste management activities;
 - (c) To enable the permittee to respond to sudden changes in the types or quantities of the wastes managed under the facility permit; or
 - (d) To facilitate other changes to protect human health and the environment.
 - d. A temporary authorization may be reissued for one additional term of up to 180 days provided that the permittee has requested a major permit modification for the activity covered in the temporary authorization, and the director determines that the reissued temporary authorization involving a major permit modification request is warranted to allow the authorized activities to continue while the modification procedures of subdivision 2 of this subsection are conducted.
5. The director's decision to grant or deny a permit modification request under subdivision of this subsection may be appealed under the case decision provisions of the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).
6. Newly defined or identified wastes. The permitted facility is authorized to continue to manage wastes defined or identified as solid waste under 9VAC20-81-95 of this chapter if:
- a. It was in existence as a solid waste management facility with respect to the newly defined or identified solid waste on the effective date of the final rule defining or identifying the waste; and
 - b. It is in compliance with the standards of Part III (9VAC20-81-100 et seq.) or IV (9VAC 20-81-300 et seq.) of this chapter, as applicable, with respect to the new waste, submits a minor modification request on or before the date on which the waste becomes subject to the new requirements; or
 - c. It is not in compliance with the standards of Part III (9VAC 20-81-100 et seq.) or IV (9VAC 20-81-300 et seq.) of this chapter, as applicable, with respect to the new waste, also submits a complete permit modification request within 180 days after the effective date of the definition or identifying the waste.
7. Research, development and demonstration plans. Research, development and demonstration (RDD) plans may be submitted for sanitary landfills that meet the applicability requirements. These plans shall be submitted as a major permit modification application for existing sanitary landfills or as a part of the Part B application for new sanitary landfills.

a. Applicability.

(1) RDD shall be restricted to permitted sanitary landfills designed with a composite liner system, as required by 9VAC20-81-130 J 1. The effectiveness of the liner system and leachate collection system shall be demonstrated in the plan and shall be assessed at the end of the testing period in order to compare the effectiveness of the systems to the start of the RDD testing period.

(2) Operating permitted sanitary landfills that have exceeded groundwater protection standards at statistically significant levels in accordance with 9VAC20-81-250 B, from any waste unit on site shall have implemented a remedy in accordance with 9VAC20-81-260 C prior to the RDD plan submittal. Operating permitted sanitary landfills that have an exceedance in the concentration of methane gas migrating from the landfill in accordance with 9VAC20-81-200 shall have a gas control system in place per 9VAC20-81-200 B prior to the RDD plan submittal.

(3) An owner or operator of a sanitary landfill that disposes of 20 tons of municipal solid waste per day or less, based on annual average, may not apply for a modification to include a RDD plan.

(4) The sanitary landfill shall have a leachate collection system designed and constructed to maintain less than a 30 cm depth of leachate on the liner.

b. Requirements.

(1) RDD Plans may be submitted for activities such as:

(a) The addition of liquids in addition to leachate and gas condensate from the same landfill for accelerated decomposition of the waste mass; prior to the RDD Plan submittal.

(b) Allowing run-on water to flow into the landfill waste mass; and

(c) Allowing testing of the construction and infiltration performance of alternative final cover systems.

An RDD plan may be proposed for other measures to be taken to enhance stabilization of the waste mass.

(2) No landfill owner or operator may continue to implement an RDD plan beyond any time limit placed in the initial plan approval or any renewal without issuance of written prior approval by the department. Justification for renewals shall be based upon information in annual and final reports as well as research and findings in technical literature.

(3) RDD plans may not include changes to the approved design and construction of subgrade preparation, liner system, leachate collection and removal systems, final cover system, gas and leachate systems outside the limits of waste, run-off controls, run-on controls, or environmental monitoring systems exterior to the waste mass.

(4) Implementation of an approved RDD plan shall comply with the specific conditions of the RDD Plan as approved in the permit for the initial testing period and any renewal.

(5) Structures and features exterior to the waste mass or waste final grades shall be removed at the end of the testing period, unless otherwise approved by the department in writing.

(6) The RDD plan may propose an alternate final cover installation schedule.

c. An RDD plan shall include the following details and specifications. Processes other than adding liquids to the waste mass and leachate recirculation may be practiced in conjunction with the RDD plan.

(1) Initial applications for RDD plans shall be submitted for review and approval prior to the initiation of the process to be tested. These plans shall specify the process that will be tested, describe preparation and operation of the process, describe waste types and characteristics that the process will affect, describe desired changes and end points that the process is intended to achieve, define testing methods and observations of the process or waste mass that are necessary to assess effectiveness of the process, and include technical literature references and research that support use of the process. The plans shall specify the time period for which the process will be tested. The plans shall specify the additional information, operating experience, data generation, or technical developments that the process to be tested is expected to generate.

(2) The test period for the initial application shall be limited to a maximum of three years.

(3) Renewals of testing periods shall be limited to a maximum of three years each. The maximum number of renewals shall be limited to three.

(4) Renewals shall require department review and approval of reports of performance and progress on achievement of goals specified in the RDD plan.

(5) RDD Plans for addition of liquids, in addition to leachate and gas condensate from the same landfill, for accelerated decomposition of the waste mass and/or for allowing run-on water to flow into the landfill waste mass shall demonstrate that there is no increased risk to human health and the environment. The following minimum performance criteria shall be demonstrated.

(a) Risk of contamination to groundwater or surface water will not be greater than the risk without an approved RDD plan.

(b) Stability analysis demonstrating the physical stability of the landfill.

(c) Landfill gas collection and control in accordance with applicable Clean Air Act requirements (i.e., Title V, NSPS or EG rule, etc.).

(d) For RDD plans that include the addition of offsite nonhazardous waste liquids to the landfill, the following information shall be submitted with the RDD plan:

(i) Demonstration of adequate facility liquid storage volume to receive the offsite liquid;

(ii) A list of proposed characteristics for screening the accepted liquids is developed; and

(iii) The quantity and quality of the liquids are compatible with the RDD plan.

If offsite nonhazardous liquids are certified by the offsite generator as stormwater uncontaminated by solid waste, screening is not required for this liquid.

(6) RDD plans for testing of the construction and infiltration performance of alternative final cover systems shall demonstrate that there is no increased risk to human health and the environment. The proposed final cover system

shall be as protective as the final cover system required by 9VAC20-81-160 D. The following minimum performance criteria shall be demonstrated:

- (a) No build up of excess liquid in the waste and on the landfill liner;
 - (b) Stability analysis demonstrating the physical stability of the landfill;
 - (c) No moisture will escape from the landfill to the surface water or groundwater; and
 - (d) Sufficient reduction in infiltration so that there will be no leakage of leachate from the landfill.
- (7) RDD plans that evaluate introduction of liquids in addition to leachate or gas condensate from the same landfill shall propose measures to be integrated with any approved leachate recirculation plan and compliance with requirements for leachate recirculation.
- (8) RDD plans shall include a description of warning symptoms and failure thresholds that will be used to initiate investigation, stand-by, termination, and changes to the process and any other landfill systems that might be affected by the process, such as gas extraction and leachate recirculation. Warning symptoms shall result in a reduction or suspension of liquids addition, leachate recirculation, investigation, and changes to be implemented before resuming the process being tested. Failure thresholds shall result in termination of the process being tested, investigation, and changes that will be submitted to the department for review and approval in writing prior to resumption of the process being tested.
- (9) RDD plans shall include an assessment of the manner in which the process to be tested might alter the impact that the landfill may have on human health or environmental quality. The assessment shall include both beneficial and deleterious effects that could result from the process.
- (10) RDD plans shall include a geotechnical stability analysis of the waste mass and an assessment of the changes that the implementation of the plan are expected to achieve. The geotechnical stability analysis and assessment shall be repeated at the end of testing period, with alteration as needed to include parameters and parameter values derived from field measurements. The plan shall define relevant parameters and techniques for field measurement.
- (11) RDD plans shall propose monitoring parameters, frequencies, test methods, instrumentation, record-keeping and reporting to the department for purposes of tracking and verifying goals of the process selected for testing.
- (12) RDD plans shall propose monitoring techniques and instrumentation for potential movements of waste mass and settlement of waste mass, including proposed time intervals and instrumentation, pertinent to the process selected for testing.
- (13) RDD plans shall propose construction documentation, construction quality control and construction quality assurance measures, and recordkeeping for construction and equipment installation that is part of the process selected for testing.
- (14) RDD plans shall propose operating practices and controls, staffing, monitoring parameters, and equipment needed to support operations of the process selected for testing.

(15) RDD plans that include aeration of the waste mass shall include a temperature monitoring plan, a fire drill and safety program, instructions for use of liquids for control of temperature and fires in the waste mass, and instructions for investigation and repair of damage to the liner and leachate collection system.

(16) RDD plans may include an alternate interim cover system and final cover installation schedule. The interim cover system shall be designed to account for weather conditions, slope stability, and leachate and gas generation. The interim cover shall also control, at a minimum, disease vectors, fires, odors, blowing litter, and scavenging.

d. Reporting. An annual report shall be prepared for each year of the RDD testing period, including any renewal periods, and a final report shall be prepared for the end of the testing period. These reports shall assess the attainment of goals proposed for the process selected for testing, recommend changes, recommend further work, and summarize problems and their resolution. Reports shall include a summary of all monitoring data, testing data and observations of process or effects and shall include recommendations for continuance or termination of the process selected for testing. Annual reports shall be submitted to the department within three months after the anniversary date of the approved permit or permit modification. Final reports shall be submitted at least 90 days prior to the end of the testing period for evaluation by the department. The department shall review this report within 90 days. If the department's evaluation indicates that the goals of the project have been met, are reliable and predictable, the department will provide a minor permit modification to incorporate the continued operation of the project with the appropriate monitoring.

e. Termination. The department may require modifications to or immediate termination of the RDD process being tested if any of the following conditions occur:

- (1) Significant and persistent odors;
 - (2) Significant leachate seeps or surface exposure of leachate;
 - (3) Significant leachate head on the liner;
 - (4) Excessively acidic leachate chemistry or gas production rates or other monitoring data indicate poor waste decomposition conditions;
 - (5) Instability in the waste mass; or
 - (6) Other persistent and deleterious effects.
- (7) The RDD program is an optional participation program, by accepting the modification or new permit, the applicant acknowledges that the program is optional; and that they are aware the department may provide suspension or termination of the RDD program for any reasonable cause, without a public hearing. Notice of suspension or termination will be by letter for a cause related to a technical problem, nuisance problem, or for protection of human health or the environment as determined by the department.

G. Facility siting. The suitability of the facility location will not be considered at the time of permit modification unless new information or standards indicate that an endangerment to human health or the environment exists which was unknown at the time of permit issuance or the modification is for an expansion or increase in capacity.

Part VI
Special Wastes

9VAC20-81-610. General.

A. The requirements and standards contained in this part apply to solid waste that requires special handling and precautions and are in addition to the general requirements contained in Part III (9VAC20-81-100 et seq.) and Part IV (9VAC20-81-300 et seq.) of this chapter, as applicable.

1. Facilities may receive solid waste that requires special handling for processing or disposal only with specific approval of the director or by specific provisions within the facility permit. The operator should contact the department for advice about new or unusual wastes and proper handling techniques. If it is not clear that a particular waste is within the authorized wastes that a permitted facility may receive, it is required that the operator receive a letter of clarification from the department before receiving the waste.

2. Nothing in this part shall limit or affect the power of the director, by his order, to prohibit storage, treatment, or disposal of any waste or require special handling requirements he determines are necessary to protect the public health or the environment.

B. The requirements and standards contained in this part also apply to specific materials that are used in a manner that constitutes disposal.

9VAC20-81-620. Asbestos-containing waste materials.

A. Applicability. The additional standards contained in this section apply to the management of all asbestos-containing waste materials (ACM) generated by asbestos mills, by manufacturing, fabricating, and spraying operations, and Regulated Asbestos Containing Material (RACM) as defined by 40 CFR Part 61, Subpart M, as amended, generated in the course of demolition and renovation of installations, structures or buildings, or other waste-generating activities. These requirements do not apply to naturally occurring asbestos. All definitions included in 40 CFR Part 61, Subpart M, as amended, are hereby included by reference.

B. Waste preparation for disposal. In order for asbestos-containing waste materials to be accepted at the disposal site, these materials shall meet the transporting and packaging requirements for asbestos-containing waste materials according to 40 CFR Part 61, Subpart M, as amended, which is hereby incorporated.

C. Disposal of asbestos-containing waste materials. Each owner or operator of a solid waste disposal facility that receives asbestos-containing waste materials shall dispose of these materials according to the requirements of 40 CFR Part 61, Subpart M, as amended, which is hereby incorporated. In addition to the requirements of 40 CFR Part 61, Subpart M, as amended, each owner or operator of a solid waste disposal facility that receives asbestos-containing waste materials shall meet the following requirements:

1. All asbestos-containing waste materials generated in a manufacturing, fabrication, or spraying operation and all RACM generated in a demolition or renovation operation shall be disposed in a special purpose landfill or in a designated area of a sanitary landfill. Category I and Category II nonfriable ACM may be disposed in a landfill providing daily soil cover, providing that the operator is notified and other pertinent requirements of this part are met.

2. ACM may be disposed in asbestos disposal cells or units located at existing disposal facilities above the natural ground level, provided they comply with all other appropriate regulatory requirements contained in Part III (9 VAC 20-81-100 et seq.) of this chapter.

D. Closure and postclosure care. In addition to the requirements contained in Part III (9VAC20-81-100 et seq.) of this chapter, the owner or operator of a solid waste disposal facility receiving the asbestos-containing waste material shall, within 60 days of the closure of the site, record with the county clerk's office a notation on the deed to the facility property or any other document that would normally be examined during a title search that will in perpetuity notify any purchaser of the property that:

1. The property has been used for the disposal of asbestos-containing waste materials;
2. The copy of the survey plot and the record of location and quantity of asbestos containing waste materials disposed are attached to the notation; and
3. The site is subject to regulation under 9VAC5-60-70.

9VAC20-81-630. Wastes containing polychlorinated biphenyls (PCBs).

A. Definitions. The definitions provided in this subsection are derived from definitions in 40 CFR 761.3 and are provided here for the convenience of the regulated community. The definitions here have been altered from those appearing in the federal regulation in order to simplify the definitions to indicate the specific types of items that can or cannot be considered for disposal in a sanitary landfill. These definitions are not identical to the federal definitions. All terms that are used in this section and that are not defined in this subsection shall have the same meaning as in Part I (9VAC20-81-10 et seq.) of this chapter or 40 CFR 761.3, as amended. Nothing in this section shall be deemed to allow management other than as required by federal law and regulation.

"PCB cleanup waste" means nonliquid cleaning materials and personal protective equipment at any concentration including nonporous surfaces and other nonliquid materials such as rags, gloves, booties, other disposable personal protective equipment, and similar materials.

B. Solid wastes containing PCB concentrations between 1.0 ppm and 50 ppm are restricted to disposal in sanitary landfills or industrial waste landfills with leachate collection, liners, and appropriate groundwater monitoring as required in Part III (9VAC20-81-100 et seq.) of this chapter, except as allowed in subsection C of this section.

C. Other PCB wastes.

1. PCB bulk product wastes with concentrations above 50 ppm may be approved for disposal by the director on a case-by-case basis. Submissions prepared for the director's decision will include a description of the PCB waste indicating the material proposed for disposal and how the federal regulations under 40 CFR 761.62 apply to the material. Consistent with the procedures in 40 CFR Part 761, PCB bulk product wastes that are shredder fluff or plastics as defined above need not be tested for PCBs prior to disposal. However, other PCB bulk product waste that has been sampled in accordance with the protocols set out in 40 CFR Part 761 Subpart R and may be considered for disposal if the waste leaches PCBs at less than 10 micrograms per liter measured using a procedure used to simulate leachate generation. Requests for a director's determination must come from a permitted landfill. Alternatively, a landfill may modify its permit to

incorporate a special waste acceptance plan that addresses PCB wastes. Facilities requesting to receive PCB bulk product waste must also meet the following provisions:

- a. The landfill to receive the waste must have a liner system meeting the requirements of 9VAC20-81-130 J 1 a or an alternate liner approved under the provisions of 9VAC20-81-130 J 1 b or 1 c.
- b. The landfill to receive the waste must have a leachate collection system consistent with 9VAC20-81-210.
- c. Groundwater monitoring may not have detected Table 3.1 constituents above the maximum contaminant levels (MCLs) promulgated under § 141.2 of the Safe Drinking Water Act (40 CFR Part 141, Subpart B) or other established groundwater protection standard during the active life of the facility.

2. Consistent with 40 CFR Part 761, PCB articles such as PCB-contaminated electrical equipment, PCB hydraulic machines, or pipe that have previously contained PCB, which have been drained, may be disposed of in a sanitary landfill with leachate collection, liners, and appropriate groundwater monitoring as required in Part V (9VAC20-81-400 et seq.) of this chapter. PCB testing, draining and other preparation for disposal of the equipment, if required, will be consistent with 40 CFR Part 761.

D. Consistent with 40 CFR Part 761, PCB remediation waste with PCB concentrations greater than or equal to 50 ppm may not be disposed of in a sanitary landfill or industrial landfill. PCB remediation waste includes but is not limited to items such as soil, sediments, dredged materials, muds, and sludge. PCB cleanup waste as defined above may be disposed in a sanitary landfill with liners and a leachate collection system.

9VAC20-81-640. Waste tires.

A. Unless exempt under 9VAC20-81-95, owners or operators of a solid waste management facility storing tires, to include sites engaged in speculative accumulation, shall obtain a permit in accordance with standards contained in Parts III (9VAC20-81-100 et seq.) or IV (9VAC20-81-300 et seq.) of this chapter as appropriate.

B. Owners or operators of solid waste management facilities that store waste tires in containers such as trailers shall, in addition to applicable requirements contained in Part IV (9VAC20-81-300 et seq.) of this chapter:

1. Establish and maintain a contractual agreement for prompt removal of the waste tires from the facility;
2. Obtain approval for the storage area from the local fire marshal, if required; and
3. Shall not store waste tires in excess of the quantity specified in the permit.

C. Owners or operators of solid waste management facilities that store or treat waste tires in piles shall, in addition to the applicable requirements contained in Part IV (9VAC20-81-300 et seq.):

1. Place the waste tires in piles that do not exceed five feet in height, exceed 50 feet in width, nor exceed 5,000 square feet in base surface area;
2. Provide a minimum separation distance of 50 feet between waste tire piles and between the waste tire piles and any structure. These separation areas shall be

maintained free of obstructions and maintained in such a manner that emergency vehicles will have adequate access to all waste tire management areas.

3. Unless the waste tire pile is located at a sanitary or CDD landfill regulated under Part IV (9VAC20-81-300 et seq.):

- a. Provide a berm of soil between all waste tire piles in the storage area. The berm shall extend as high as the height of the waste tire pile;
- b. In addition to any material in the berm, for each waste tire pile, provide and maintain a stockpile of 20 cubic yards of soil within 200 feet of each pile; and
- c. Provide a fence around the entire storage and treatment area to control access to the storage facility;

4. Not store waste tires in excess of the quantity specified in the permit.

D. More than 1,000 discarded tires shall not be stored at a landfill unless the permit expressly allows such storage. Tires disposed in a sanitary or construction/demolition/debris landfill shall be split, cut, or shredded before disposal and should be dispersed in the workface with other solid wastes. Alternate burial not incorporating cutting or splitting at a specific facility may be approved if the method will assure that tires will not emerge from the landfill.

9VAC20-81-650. White goods.

Appliances and other white goods may be accumulated at a facility so long as 75% of the materials accumulated are removed from the facility annually. Restrictions for the disposal of white goods can be found in 9VAC20-81-140.

9VAC20-81-660. Soil contaminated with petroleum products.

A. Applicability.

1. The specific requirements contained in this section apply to requests by the owner or operator to manage or dispose of petroleum contaminated soil or absorbents, unless the facility's permit specifically allows disposal of the contaminated soil. Upon removal from the ground, the soil must be characterized and managed according to the appropriate regulations including 9VAC20-60 and 9VAC20-81.
2. Any contaminated soil from a state other than Virginia that is classified as a hazardous waste in the state of origin shall be managed as a hazardous waste. Such wastes are not acceptable for treatment, storage, or disposal at a solid waste management facility in the Commonwealth.
3. For purposes of this section "soil" shall include soil, sediment, dredge spoils, and other earthen material contaminated only by petroleum products.

B. Testing requirements.

1. Analytical methods. The facility shall use the appropriate EPA SW-846 method to determine the characteristics of the soil. The parameters that shall be investigated, include, but are not limited to, the following, as appropriate: RCRA hazardous waste characteristics (i.e., corrosivity, ignitability, reactivity, and toxicity); total metals; volatile organic compounds; semi-volatile compounds; total petroleum hydrocarbons (TPH), pesticides/herbicides; polychlorinated bi-phenyls (PCBs); presence of liquids; and total organic halides (TOX).

2. The department will determine, on a case-by-case basis, which tests are appropriate. Specific testing requirements may be waived if the department staff determines that the material was contaminated from a specific source such as chlorinated solvents from a drycleaner or petroleum products from an underground storage tank.

3. Sampling frequency. A minimum of one composite sample shall be analyzed for each required test for every 250 cubic yards of soil to be disposed. In the case of soil reclaimed by thermal treatment, a minimum of one sample shall be analyzed for every production day composited hourly. For quantities of soil greater than 2,500 cubic yards the sampling rates may be adjusted with the approval of the department.

C. Required information. Each generator must submit the following information to the department for review:

1. A statement from the generator certifying that the soil is nonhazardous waste as defined by the Virginia Hazardous Waste Management Regulations (9VAC20-60).
2. The amount of contaminated soil to be disposed.
3. A description of the sampling protocol and a copy of all applicable laboratory analyses.
4. If generated in a state other than Virginia, certification from the generator that the waste is not considered a hazardous waste in its state of generation.
5. The potential options for disposal of the material based upon the testing results, including, but not limited to disposal of a hazardous waste, disposal as a special waste, beneficial reuse as a fill material, or use as an alternate daily cover.

D. Disposal criteria.

1. Soils failing the TCLP test shall be managed in accordance with the Virginia Hazardous Waste Management Regulations (9VAC20-60).
2. Soils contaminated solely with petroleum related products including BTEX, TOX, or TPH shall be handled as follows:
 - a. Soils exhibiting greater than 100 milligram per kilogram (mg/kg) of TOX may not be disposed until separate approval from the department is granted. This request shall document the cause for the high TOX level.
 - b. If the concentration of total BTEX is greater than 10 mg/kg or TPH is greater than 500 mg/kg, the soil cannot be disposed of in any landfill unless the facility permit expressly allows such disposal.
 - c. If the concentration of TPH is greater than 50 mg/kg and less than 500 mg/kg and total BTEX is less than 10 mg/kg, the disposal of the contaminated soil may be approved for permitted landfills equipped with liners and leachate collection systems.
 - d. Soil containing less than 50 mg/kg TPH and total BTEX less than 10 mg/kg may be used as fill material. This soil, however, may not be disposed of closer than 100 feet of any regularly flowing surface water body or river, 500 feet of any well, spring or other groundwater source of drinking water, and 200 feet from any residence, school, hospital, nursing home, or recreational park area. In addition, if the soil is not to be disposed of on the generator's

property, the generator shall notify the property owner that the soil is contaminated and with what it is contaminated.

3. Soil contaminated with compounds other than petroleum and that is not hazardous waste shall be disposed of according to the criteria approved by the department.

E. Exemptions.

1. Contaminated soil resulting from a petroleum storage tank release or from a spill qualifies for an exemption from the limits and/or testing specified in subdivisions D 2 a, b, and c of this section where the total volume of contaminated soil from a cleanup site is less than 20 cubic yards, and the contaminated soil is not a hazardous waste.
2. The department may approve the disposal of contaminated soil resulting from an emergency cleanup of a spill of petroleum products, provided that the waste is not hazardous.
3. Soil contaminated with petroleum products resulting from ordinary household functions may be disposed with the general household waste.

Part VII
Variance Application Procedures

9VAC20-81-700. General.

A. Any person affected by this chapter may apply to the department for a variance from any requirement of this chapter. Variance determinations shall be subject to the provisions of the Virginia Administrative Process Act (§ 2.2-4000 et seq. of the Code of Virginia).

B. The department shall not accept any variance application relating to:

1. Equivalent testing or analytical methods contained in EPA Publication SW-846;
2. Definition of solid waste contained in 9VAC20-81-95;
3. Criteria used for classification of solid waste disposal facilities contained in 40 CFR Parts 257 and 258, as amended; and
4. A change in the regulatory requirements that the applicant is currently violating until such time as the violation has been resolved through the enforcement process.

9VAC20-81-710. Solid waste classification exemption procedure.

A. Applicability.

1. A person who uses, reuses, or reclaims waste that is managed entirely within the Commonwealth may apply to the department to exclude the waste at a particular site from the classification as the solid waste (see Part II of this chapter). The conditions under which an application for a variance will be accepted are shown in 9VAC20-81-710 B. The wastes excluded under such applications may still, however, remain classified as a solid waste for the purposes of other regulations issued by the Virginia Waste Management Board or other agencies of the Commonwealth.
2. A person who uses, reuses, or reclaims materials from a generating site outside the Commonwealth and who causes them to be brought into the Commonwealth for use, reuse, or reclamation shall first obtain favorable decision from the appropriate authorities in that state before the waste may be considered for an exemption by the director.

B. Conditions for an exemption. As the result of an application and in accordance with the standards and criteria in 9VAC20-81-710 C and the procedures in 9VAC20-81-760, the director may determine on a case-by-case basis that the following used, reused, or reclaimed materials are exempt for the purposes of this chapter:

1. Materials that are accumulated speculatively without sufficient amounts being used, reused or reclaimed (9VAC20-81-95);
2. Materials that are reclaimed and then reused within the original primary production process in which they were generated;
3. Materials that have been reclaimed but shall be reclaimed further before the materials are completely recovered; and
4. Materials that are reclaimed and then reused in applications involving their placement into land.

C. Standards and criteria for exemptions.

1. The director may grant requests for a variance from classifying as a solid waste those materials that are accumulated speculatively without sufficient amounts being used, reused, or reclaimed if the applicant demonstrates that sufficient amounts of the material will be used, reused, or reclaimed or transferred for recycling use, reuse, or reclamation in the following year. If a variance is granted, it is valid only for the following year, but can be renewed, on an annual basis, by filing a new application. The director's decision will be based on the following standards and criteria:

- a. The manner in which the material is expected to be used, reused, or reclaimed, and when the material is expected to be used, reused, or reclaimed, and whether this expected disposition is likely to occur (for example, because of past practice, market factors, the nature of the material, or contractual arrangement for use, reuse, or reclamation);
- b. The reason that the applicant has accumulated the material for one or more years without use, reuse, or reclamation of 75% of the volume accumulated at the beginning of the year;
- c. The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is used, reused, or reclaimed;
- d. The extent to which the material is handled to minimize loss; and
- e. Other relevant factors.

2. The director may grant requests for a variance from classifying as a solid waste those materials that are reclaimed and then reused as feedstock within the original primary production process in which the materials were generated if the reclamation operation is an essential part of the production process. This determination will be based on the following criteria:

- a. How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;
- b. The prevalence of the practice on an industrywide basis;
- c. The extent to which the material is handled before reclamation to minimize loss;
- d. The time periods between generating the material and its reclamation, and between reclamation and return to the original primary production process;
- e. The location of the reclamation operation in relation to the production process;
- f. Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process, and whether it is returned to the process in substantially its original form;
- g. Whether the person who generates the material also reclaims it; and
- h. Other relevant factors.

3. The director may grant requests for a variance from classifying as a solid waste those materials that have been reclaimed but shall be reclaimed further before recovery is completed if, after initial reclamation, the resulting material is commodity-like (even though it is not yet a commercial product, and has to be reclaimed further). This determination will be based on the following factors:

- a. The degree of processing the material has undergone and the degree of further processing that is required;

- b. The value of the material after it has been reclaimed;
 - c. The degree to which the reclaimed material is like an analogous raw material;
 - d. The extent to which an end market for the reclaimed material is guaranteed;
 - e. The extent to which the reclaimed material is handled to minimize loss; and
 - f. Other relevant factors.
4. The director may grant requests for a variance from classifying as a solid waste those materials that are reclaimed and then reused in applications involving placement into land. This determination will be based on the following factors:
- a. How economically advantageous is the utilization process using reclaimed materials compared to the virgin materials;
 - b. The prevalence of the practice on an industrywide basis;
 - c. The extent to which the material is handled before reclamation to minimize loss;
 - d. The location of the generating and reclamation operations in relation to the utilization process;
 - e. The chemical and physical characteristics of the material prior and after the reclamation process;
 - f. An estimate of the rate of annual usage of the reclaimed material;
 - g. Whether the person who generates the material also reclaims it;
 - h. Proximity of emplaced materials to ground and surface waters; and
 - i. Other factors relevant to public health and the environment.

9VAC20-81-720. Variances to permitting requirements.

A. Application and conditions. The director may grant a variance from any regulation contained in Parts III (9VAC20-81-100 et seq.), IV (9VAC20-81-300 et seq.), V (9VAC20-81-400 et seq.), and VI (9VAC20-81-610 et seq.) of this chapter to an applicant if the applicant demonstrates to the satisfaction of the director that:

- 1. a. Strict application of the regulation to the facility will result in undue hardship that is caused by the applicant's particular situation;
- b. The alternate design or operation will result in a facility that is equally protective of human health and the environment as that provided for in the regulations; or
- c. Technical conditions exist that make a strict application of the regulation difficult to achieve; and
- 2. Granting the variance will not result in an unreasonable risk to the public health or the environment.

B. Effects of the decisions.

- 1. When the director renders a decision under this section in accordance with the procedures contained in 9VAC20-81-760, he may:
 - a. Deny the application;
 - b. Grant the variance as requested; or
 - c. Grant a modified or partial variance.

2. When a variance is granted, the director may:
 - a. Specify the termination date of the variance; or
 - b. Include a schedule for:
 - (1) Compliance, including increments of progress, by the facility with each requirement of the variance; and
 - (2) Implementation by the facility of such control measures as the director finds necessary in order that the variance may be granted.

9VAC20-81-740. Variance to location of the groundwater monitoring system.

A. The applicant may request a variance to the location for the groundwater monitoring system other than at the disposal unit boundary as required by 9VAC20-81-250 A 3 a if he can demonstrate that the response time is sufficiently long to identify and remediate or otherwise contain groundwater that may become impacted before it reaches the facility boundary. This alternate point of compliance with the groundwater monitoring requirements shall be located within the facility boundary and shall not be located farther downgradient than 500 feet from the disposal unit boundary.

B. The application shall provide information on:

1. The hydrogeologic characteristics of the facility and surrounding land. The information shall include an estimate of the width and depth of a plume that may migrate from the disposal unit.
2. The volume and physical and chemical characteristics of the leachate.
3. The quality, quantity, and direction of groundwater flow. This information shall include a determination whether contaminants from the unit will be detectable at the proposed point of compliance.
4. The proximity and withdrawal rate of the groundwater users. This information shall include the estimate of time of travel to private or public supply wells.
5. The availability of alternate drinking water supplies in the event of a groundwater contamination problem.
6. The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the ground water and whether groundwater is currently used or reasonably expected to be used for drinking water.
7. Practicable capability of the owner or operator. The information shall include an indication of financial capability of the owner or operator to maintain a longer and more costly corrective action program owing to the longer detection time frame associated with the proposed point of compliance.

C. Based on the information received the director will consider the potential overall effect on public health, welfare, and safety of the proposed point of compliance. Consideration will include:

1. Distance to the facility boundary and to the nearest groundwater user or potentially affected surface water;
2. The response time required to remediate or otherwise contain groundwater that may become impacted and potentially affect downgradient water supplies; and
3. Risk that detection may not be representative of worst case condition of the groundwater.

9VAC20-81-760. Administrative procedures.

A. Submission of application.

1. General application requirements. All applications submitted to the director shall include:

- a. The applicant's name and address;
- b. A statement of applicant's interest in the proposed action;
- c. A description of the desired action and a citation to the regulation from which a variance is requested;
- d. A description of the need and justification for the proposed action;
- e. The duration of the variance, if applicable;
- f. The potential impact of the variance on public health or the environment;
- g. Other information believed by the applicant to be pertinent; and
- h. The following statements signed by the applicant or his authorized representative:

"I certify that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

- i. In accordance with the provisions of § 10.1-1408.1 of the Code of Virginia, no application for a variance allowing a noncaptive industrial landfill to expand or increase capacity shall be allowed without providing local government certification and disclosure information in accordance with the provisions of 9VAC20-81-450.

2. Additional requirements for applications under 9VAC20-81-710. In addition to the general information required of all applicants under subdivision 1 of this subsection:

- a. To be successful the applicant shall address the standards and criteria listed in 9VAC20-81-710 C.
- b. For applications submitted under 9VAC20-81-710 B 4 the following additional information is required:
 - (1) A description of the waste and an estimate of the average and maximum monthly and annual quantities of waste covered by the application;
 - (2) A description of the methodologies and equipment used to obtain representative samples and analyses, to include:
 - (a) The name and address of the laboratory facility performing the sampling on tests of the waste, if different from that of the applicant;
 - (b) The qualifications of the persons sampling and testing the wastes;
 - (c) The dates of sampling and testing;
 - (d) A description of sample handling and preparation techniques, including techniques used for extraction, containerization, and preservation of samples; and
 - (e) A description of the tests performed and the results obtained.
 - (3) The description of the reclamation processes.

3. Additional requirements for application under 9VAC20-81-720. In addition to the general information required of all applicants under subdivision 1 of this subsection, the applicant shall submit:

- a. An explanation of the applicant's particular situation that prevents the facility from achieving compliance with the cited regulation; and
- b. Other information as may be required by the department.

B. Application processing.

1. After receiving an application that includes the information required in subsection A of this section, the director will determine whether the information received is sufficient to render the decision. If the information is deemed to be insufficient, the director will request that additional information be furnished.

2. The applicant may submit the additional information requested, or may demonstrate that the additional information should not be required. If the director agrees that the additional information should not be required, he will act in accordance with subdivision 3 of this subsection.

3. After the application is deemed complete:

a. The director will make a tentative decision to grant or deny the variance request.

b. If the variance request is tentatively denied, the director will offer the applicant the opportunity to withdraw the request, submit additional information, or proceed with the evaluation.

c. The director will issue a notice tentatively granting the variance request. Notification of this tentative decision will be provided by newspaper advertisement in the locality where the applicant is located. The director will accept comment on the tentative decision for 30 days.

d. After evaluating all public comments, the director will, within 15 days after the expiration of the comment period:

(1) Notify the applicant of the final decision; and

(2) Notify all persons who commented on the tentative decision.

C. Decision resolution.

1. In the case of a denial, the applicant has a right to request a formal hearing to challenge the rejection.

2. If the director grants a variance request, the notice to the applicant shall provide that the variance may be terminated upon a finding by the director that the applicant has failed to comply with any variance requirements.

FORMS (9VAC20-81)

Annual Report Submission Checklist, DEQ Form ARSC-01 (eff. 11/01).

Solid Waste Management Facility Permit Applicant's Disclosure Statement, DEQ Form DISC-01 (rev. 6/09).

Solid Waste Management Facility Permit Applicant's Disclosure Statement-Key Personnel, DEQ Form DISC-02 (rev. 6/09).

Request for Certification - Local Government, DEQ Form SW-11-1 (rev. 7/08).

Solid Waste Part A Application, DEQ Form SW PTA (rev. 4/09).

Solid Waste Landfill Part B Application, DEQ Form SW PTB (rev. 11/08).

Solid Waste Information and Assessment Program-Reporting Table, DEQ Form 50-25 (rev. 10/07)

Yard Waste Composting Notice of Intent and Certification, DEQ Form YW-1.

Yard Waste Composting Annual Report, DEQ Form YW-2.

Exempt Yard Waste Compost Facility Certification, DEQ Form YW-3.

Exempt Yard Waste & Herbivorous Manures Compost Facility Certification, DEQ Form YW-4.

DOCUMENTS INCORPORATED BY REFERENCE (9VAC20-81)

Test Methods for Evaluation of Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, 2nd Edition 1982, as amended by Update I (April 1984), Update II (April 1985), and the Third Edition (November 1986), as amended.